

AMERICAN FORESTS *and* FOREST LIFE



OCTOBER, 1925

RETIMBERING THE U. S. S. "CONSTITUTION"

COMPIEGNE FOREST : : WILDERNESS VALUES

VOL. 31, No. 382

PRICE 35 CENTS

The American Forestry Association

Washington, D. C

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AMERICAN FORESTS AND FOREST LIFE

(Formerly American Forestry)

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

OVID M. BUTLER, Editor

WASHINGTON, D. C.

L. M. CROMELIN, Assistant Editor

Vol. 31

OCTOBER, 1925

No. 382

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Published monthly—35 cents a copy—\$4.00 a year

CHANGE OF ADDRESS

A request for change of address must reach us at least thirty days before the date of the issue with which it is to take effect. Be sure to give your old address as well as the new one.

Publication and Business Office, The Lenox Building, 1523 L Street, Washington, D. C.

Entered as second-class matter at the Post-office at Washington, D. C., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918.

Additional entry at Baltimore, Md., authorized July 23, 1925.

Member A. B. C.

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*Ten thousand saw I at a glance
Waving their heads in sprightly dance*
—WORDSWORTH

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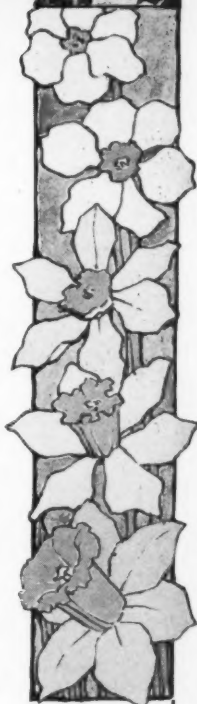
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"Fuzzy" *The Story of a Seedling Tree*

By LAURENCE EDWARD MANNING

THE little Seedling still lived. Bundled up in its tight clump of green, it bore a somewhat disreputable resemblance to a miniature whisk-broom as it crouched close to the ground. That is, if you can imagine a green whisk-broom—pale, tired, green.

The Man patted the earth firmly around it and straightened his back to survey the landscape reflectively. The hillside on which he stood formed part of a watershed which sloped up to the bare line of dead trees that straggled against the sky and down to a narrow valley. Another slope rose beyond. The texture of the picture was a mosaic of rough and ragged undergrowth, blackened stumps, bare rock, with here and there the fresh brown scar of a recent landslide, caused by the wholesale destruction of the trees whose roots had formerly held the earth in place with a thousand interlacing fibres.

This vista constituted the unsightly remains of what had once been the pride of the forest, an extensive stand of Pine, long since cut over and scourged with fire. For miles in all directions extended the disfigurement of the landscape, relieved here and there by the gleam of young birches, while the darker tint of maple shoots gave background.

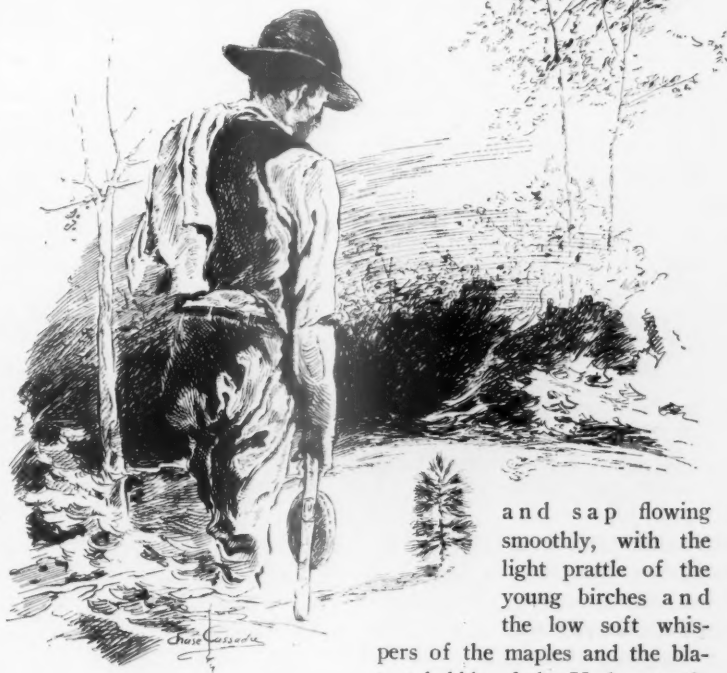
The reflective figure standing beside the Seedling grinned and glanced down to pour a little more water over it from his flask. "Little chap," he muttered, "It's a long time since I've seen your kind around here—an' ye'r shore welcome!"

He turned after a moment and swung away with long easy strides down into the valley and soon disappeared over the brow of the slope.

* * * * *

Solitude once more.

Then, if you had been there and could have heard—there was a hum and murmur of the growing things as they laughed excitedly in the joy of full spring. Leaves were pushing out and shoots starting up through the soil



and sap flowing smoothly, with the light prattle of the young birches and the low soft whis-

pers of the maples and the blattant babble of the Undergrowth.

But the Seedling felt the bliss of cool damp soil around its roots. It sighed just once and went off into deep sleep.

After a few days' rest the warm sun coaxed it awake. The process was perhaps assisted by certain neighboring citizens of the Undergrowth. They had been mak-

ing vulgar remarks about the Seedling for sometime now, in spite of the fact that no satisfaction had been forthcoming in the way of a reply.

"It's a freak," said one Blueberry to another. "Yuh never heard of a respectable bush with no leaves on—an' it the very middle of spring, didja?"

"Aw, it's a vegetibble," said the other Blueberry. "Just twig those branches stickin' out all over it. What in the name of all the Spring Rains d'ya s'pose they're for?" (There were none of the Seedlings' kith or kin on the whole watershed, and had not been for twenty years.)

The Blueberries here enjoyed an acrimonious dispute—Freak vs. Vegetable. The neighboring Undergrowth listened with interest and an Alder a few feet away, learning the cause of the argument, addressed himself to the Seedling, "Hey, you wid de root fibres stickin' out all over yuh! Planted upside down? Why doncha wake up?"

The Seedling was sleepy and sticky with spring balsam and looked around to see if the Alder might be talking to someone else. But a little space of ground had been cleared all around him. He was evidently expected to answer.

"Please, sir," he said to the Alder, "I am awake now."

The Undergrowth gasped with astonishment and after a slight pause every bush, plant and weed commenced asking questions and shouting to be heard above its neighbors.

"Wot's yer name?"

"Are yuh min'ral, animal er vegetibble?"

"Where's yer leaves? Doncha know it's spring? It's spring!"

The poor little Seedling grew quite confused to have so many talking to him all at once. And besides, he couldn't answer a single question he had been asked. He had been raised from seed in a nursery and had never seen any kind of plant except those in his own seed bed.

So he tried to pretend he hadn't heard the questions, but this only aroused the curiosity of the Undergrowth. The noise was deafening. A slender young Maple sapling that stood several feet away became annoyed. "Quit that, you bushes," he ordered. "No more manners than a Cat-vine! What *are* you chattering about now?"

And the Undergrowth, proud of his notice, all tried to tell him at once. This resulted in such a noisy confusion that he was no wiser than before, and after swaying over as far as he could to see for himself (without success) he decided it couldn't be very important and turned his attention once more to his own affairs.

But the Seedling was glad of the interruption. Left to himself for a moment, he became busy with the intricacies of growing and sending out roots. To all further inquiries as to what he was, he humbly replied that he didn't know, but they'd see for themselves when he was finished growing.

Every few days the Undergrowth took up anew, however, the sport of razzing the Seedling. The neigh-

boring Alder, who enjoyed the reputation of being something of a wag, christened him "Fuzzy" and the sou-briquet was hailed joyously—and Fuzzy he was.

All this Fuzzy bore humbly enough, for he was too busy with his own affairs to pay a great deal of attention to anybody. And realizing fully his unimportant position in the social scale, he did not dream of resenting anything from anyone.

A few weeks later (about July) Fuzzy carefully cleaned himself in a timely shower and began to take an interest in the life going on around him. He had not noticed before that very little sunlight was left by the high-reaching Undergrowth. Then he observed a raspberry starting up only an inch or two away from his stem. The little fellow was pushing up briskly and, alarmed at its nearness, Fuzzy looked about carefully to notice a dozen other shoots here and there in the space that had been cleared for his own planting.

A Morning-Glory vine was trailing on the ground nearby. The Seedling spoke to it.

"What are you looking for?" he asked.

No reply, but the snake-like tendril turned hesitatingly toward him and paused a moment. Then it turned to a young Raspberry and soon reached its stem, close above its roots. It began silently to climb. The Raspberry shivered and close neighbors leaned away from it.

There was a silence broken by a thin scream from the Raspberry and then a prolonged root shudder that Fuzzy found even harder to bear. It was all over soon (you would have thought it lasted more than a week). The vine tendrils waved at the top of their victim. The coils tightened and thickened and the Raspberry dropped its leaves and was still.

Fuzzy had been a horrified observer.

A Sugar Maple sapling nearby also was a witness to the tragedy, so Fuzzy spoke to him a little timidly.

"Please sir," he said, "Why do you all let things like that go on? It's terrible."

The Maple looked around in amazement for a minute to see who had spoken. When he finally saw Fuzzy he laughed. "You're one of them yourself, aren't you?" he said sneeringly. "It's only in the Undergrowth such things are allowed. But *you* needn't worry. You're too small to interest any vine."

"And as for that Morning-Glory there—Autumn is just about here and then *he's* through . . . What? . . . Why winter'll kill him. Snow and ice. Plants and Vines and things like that die off, of course. . . . Sufferin' gall-worms! What's the use of talking to you? I don't know if you're a plant or not."

More humble than ever, Fuzzy sank into a maze of hopes and fears. Was he really a plant, to die with the Summer? He struggled with dim remembrances that seemed to come from deep inside of him—too hazy and vague to be real. Even the Undergrowth scorned to notice him, save as the butt of an old jest.

The Eighth hour—October—arrived. The leaves

were red and gold and covered the ground with every breeze. And heavy storms came from afar and spoke of cold.

One day Fuzzy noticed the Maple with only one leaf—blazing crimson—waving in the wind. The Maple happened to glance in his direction at the same moment.

"Why, you haven't shed a leaf!" he exclaimed in astonishment. "I don't think you *have* any leaves to shed. Those long green things must be branches. Of all the queer creatures! You can't be anything but a *plant* after all—well, well, we can't all be trees." And complacently enough he shed his last leaf and was silent.

The Seedling looked around on a dead world. Even the grass and weeds were gone. *They* were never to return. It would soon be his turn now, he thought. Queer idea, this living. . . . Scramble for root room and head room—growing and seeding and dying. And he hadn't seeded. . . . Everything ought to seed, he decided, or else there wouldn't be any more of one's kind to follow after. . . . A complete failure, his life! Funny thing though, he hadn't seeded. . . .

* * * * *

The morning sun was warm! Fuzzy could scarcely open his eyes for the sticky balsam that covered every branch tip where his buds were bursting. Oh the joy of living! He felt the first delicious thrill of sap stirring in his roots. With a rush he realized that it was Spring again. He had not died after all!

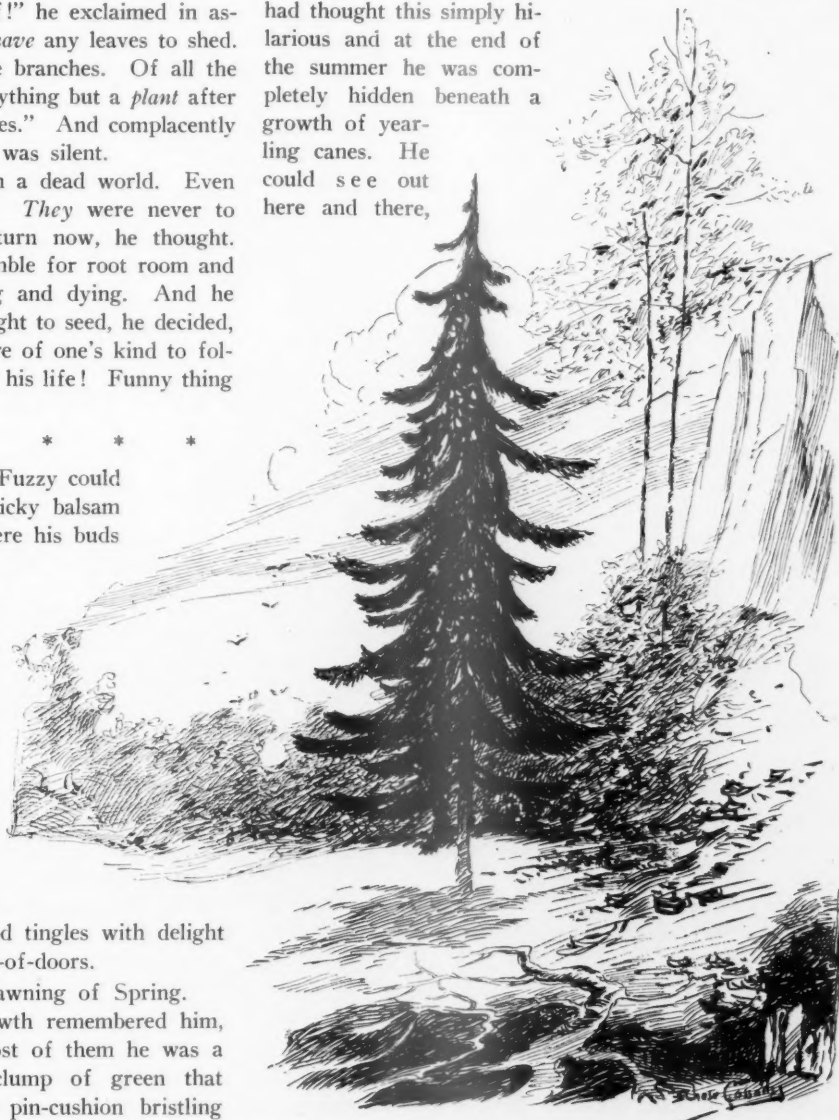
How can I describe the utter abandon of joy he took in that stirring and thin running of spring sap? It is like a child that wakes with the bright sun when the earth glistens with melting frost and the air is keen and fresh and every drop of blood tingles with delight as he dons clothes and rushes out-of-doors.

So to the Seedling came the dawning of Spring.

A few bushes of the Undergrowth remembered him, but only in hazy fashion. To most of them he was a marvelous new joke—a funny clump of green that looked a good deal like a small pin-cushion bristling full of long green pins. His nickname, of which its inventor, the Alder, was unaccountably proud, still stuck and Fuzzy once more assumed the unwilling role of butt-of-all-humor for the neighborhood.

He was friendless. His grotesque appearance was too much for the Undergrowth. The Maple seedling was much too tall and proud to even notice him this year. Fuzzy, in an humble way, found he disliked everything, without for a minute considering himself socially entitled to let them know it. Some dim inner feeling that he was *not* a part of the Undergrowth and an entire lack of sympathy with it all, persisted in rebelling against the obvious appearances.

The Raspberries, for instance. He couldn't for the life of him understand them. Forever annoying one with their silly jokes. And most of the jokes weren't pleasant. One enterprising joker had started rooting a shoot close under his twigs and as it grew up it pushed right through them. The others had thought this simply hilarious and at the end of the summer he was completely hidden beneath a growth of yearling canes. He could see out here and there,



"FUZZY IN AMAZEMENT STRUGGLED TO ACCUSTOM HIMSELF TO HIS SUDDEN GLORY."

but he was almost entirely cut off from the sunlight.

Fuzzy had grown so accustomed to being spoken to from above that he was amazed one day to hear a voice beneath him—a thin husky voice.

"Well, big bush, how do you like this fer a life?" the voice said.

Fuzzy looked about and discovered a raspberry seedling beside him only a few inches in height. This was evidently the owner of the thin and husky voice. The Raspberry leered ingratiatingly.

"Not so much t'look at fer this spring's shoot, am I?"

Well, y'see the others started off too quick for me. I'm comin' along, but I can't seem to catch up, y'see?" The seedling seemed anxious to explain this as though to forestall a sneering comment on the part of his audience. But when Fuzzy remarked politely that it was "too bad" and said nothing more the raspberry stared in an amazed way at him.

* * * * *

Fuzzy gradually came to regard this stunted raspberry with friendly pity. They two alone seemed able to talk to each other—indeed they were the only inmates of a little underworld of their own.

As the days went by it became more and more apparent that all was not well with the raspberry. His few leaves were slowly wilting. Fuzzy one day asked him about it—and suggested his one rule for health, deep rooting. "Good for you, you know," said Fuzzy. "Strengthens the whole system. My roots are down as far as I can possibly send them and that's the only thing that keeps me going here in the shade."

The raspberry stared. "Gee! It's all I can do to get down into the earth at all. The rest of 'em have just about filled the top soil around me with runners. I haven't felt like telling you—but they're squeezin' my roots somethin' awful!"

Sudden rage shook Fuzzy from top to root. "Why, you're a raspberry same as they are—isn't there anything too mean for them to do?"

"Hey, all you raspberries!" he called, "Why don't you let up on this little chap? If you all took only the soil you needed there'd still be plenty for all."

The raspberries were angered. They looked down and sniffed in a superior manner.

"You little plant!" they shouted, "We'll get you the same way before another season! Who the Fungus are you anyway? Poison ivy crossed with skunk cabbage!" And much more of the same.

Fuzzy bowed his head and held his peace. But his thoughts were bitter as he pondered the iniquity of the Undergrowth. Such things should not live: It was not decent to let them live. Was there no redress—nothing powerful enough to punish or exterminate?

Here he furtively peered through the raspberry canes to where the Sugar Maple pushed up eight feet of slim aristocracy into the air. The Maple, Fuzzy thought, was acting strangely. His top leaves were dancing, although Fuzzy felt no breeze. Then they quieted and the whole Undergrowth seemed breathlessly hushed.

What was this?

A light breeze straight from the north brought a cool aromatic fragrance. Fuzzy felt an unaccountable excitement grip him. The breeze freshened; and joy was in it and a sighing magic song was in it and a breathless dim memory was in it!

The Sugar Maple acted in an almost demented manner. He was shouting to himself. "The Forests of the North!" he exulted, with his head tossed proudly on the breeze. "The smell of the balsam and the song

of the Lords of the Forest—the song of the Pines on the North Hills. . . . The Pines of the North!"

And the Undergrowth was strangely silent.

Fuzzy spent the rest of that Autumn in a delicious dream and the pursuit of a haunting memory that grew with every puff of wind from the North. He was, he felt, on the brink of some wonderful secret.

October passed and his reverie deepened and merged into oblivion.

* * * * *

One spring morning several seasons later the warmth was earlier than usual and Fuzzy found himself wide awake and ready to grow before the Undergrowth had shown more than a bud or two. And the rain fell plentifully that spring and the sun was warmer than he had ever remembered. So it was not surprising that he made an extraordinary growth—almost two feet. He was now just under six feet in height and thanks to his early start that spring he had thickened his leaves on all the bare twigs caused by the close-crowding raspberries of the last few summers.

The Undergrowth seemed unaccountably slow in starting that year and when July was reached and he had washed himself clean of spring balsam and began to look around him more carefully, Fuzzy was amazed and delighted to find that he could see with all his top buds over his immediate neighbors.

There were raspberries sprouting close beneath him, but a wan and feeble growth they were compared to their jeering, careless thrusting of last summer. Long pent-up anger and hatred which the Seedling had in his humble days never dreamed of, now surged through every fibre of him. The Undergrowth was a hateful thing. It had made war on him. There was no ignoring that challenge. Fuzzy accepted it grimly and grimly he set to work to build a root system that would withstand the fiercest onslaughts. Deep, deep he sank his root tendrils and they sapped the moisture at its source in the cool earth and strengthened him, while close around him the Undergrowth thrived less hardily.

And as his advantage became apparent, the Undergrowth became increasingly hostile and less noisy. The nearest Alder, late in July, had sent up two root shoots—the last one within six inches of Fuzzy. Depending as it did not on its own roots, but on the main roots of the parent for sustenance, these shoots were ominously potential. In a season or two they would rival Fuzzy in height. But he met the new danger calmly. From a hundred points of his root system he started tendrils out towards the Alder. It would take another summer at least for these to become strong and thick enough to choke his enemy and by that time the Alder would be too lusty to be choked. But to this fact Fuzzy paid no attention. A root attack was the only hope he saw. And he held his purpose unwaveringly.

Meanwhile to the young Sugar Maple that stood near him, Fuzzy was a subject for curious speculation. And when he had finally emerged from the crowding rasp-

(Continued on page 619)



THE U. S. S. CONSTITUTION

From a painting by F. Muller

The Wood in "Old Ironsides"

As Told By Official Letters Written a Century and a Quarter Ago

By COMMANDER GREER A. DUNCAN
Civil Engineer Corps, United States Navy

NOTHING appeals to the patriotism of the American people more than the history of our country in its early years when our Navy contributed so largely to the winning of our independence and to its preservation. The U. S. S. *Constitution* played such an active part in defending our newly won freedom and was so appropriately memorialized by Oliver Wendell Holmes' poem "Old Ironsides," that from our earliest boyhood, when we are taught these lines, we cannot but know her as inseparable from our nation's life.

The announcement that once again this old ship is to be restored, that her wooden parts, badly eaten by decay, are to be replaced, timber for timber, raises many interesting questions as to the wood which went into the old sea fighter more than a century and a quarter ago and

as to how her hand-hewed timbers are to be matched today, size for size and species for species. Certainly the procurement of timber of dimensions equal to those laboriously sought out when the *Constitution* was built will be a much more difficult work than obtaining by public subscription the necessary funds for her restoration.

One of six frigates, which our young government started building in 1794, "Old Ironsides," whose popular name is a misnomer only from a material standpoint, is a wooden ship in every sense of the term. She was constructed at Hart's Shipyard, near Constitution Wharf, Boston, at a time when her builders had the greatest forests in the world conveniently at hand from which to select the choicest timber that ever went into a ship.

From the Atlantic Coast to the Great Plains, there stretched an almost unbroken forest of mighty trees. Notwithstanding this fact, the builders of the *Constitution* and her sister ships were so particular as to the timbers to be used, that difficulties in meeting their requirements repeatedly impeded their labors and delayed by many months the completion of the ship.

It is difficult to conceive timber problems in those days of timber plenty but from records of the period, it would appear that inability to obtain the quantity of a quality of wood which the builders thought necessary for the six first class warships resulted finally in the decision to abandon the building of three of the frigates and to divert all suitable wood to the remaining three in order to speed their completion.

An insight to the wood used in the old ship and the difficulties encountered in its procurement may be gained by scanning the pages of an old copy book at present in the files of the Library of the Navy Department. It is labeled "The Copies of Correspondence with reference to Naval Matters during the Time the Affairs of the Navy were in the Hands of the War Department." It is, as is to be expected of the meticulous clerks of those days, a magnificent example of penmanship quite as worthy of emulation by the engravers of today as are the lessons of its records by those to whom will fall the task of discovering, felling, manufacturing, delivering and working into place the timbers in the restoration of the U. S. S. *Constitution*.

The proposal to build the warship appears to have taken definite form in 1790, for the first record in the book is a letter from John Foster Williams, dated Oc-

tober 30, of that year, in which he submitted an estimate of \$73,840 for the building of a frigate of 1,300 tons. To equip the ship with guns, 200 rounds of powder, 150 round of shot, 200 eight-inch shells [sic], with hand grenades, muskets, pistols, cutlasses and a six months' supply

of rations, which among other things provided each man 7 gallons of beer a week, increased the estimate to a total of \$98,959.68. The writer asserted "this estimate to be not far wide of what will be the real cost" but "as circumstances would not admit of my being too open in my

inquiries it may vary a little." As a matter of fact, the cost of building the *Constitution* exceeded \$300,000 and the estimate for reconconditioning the ship today has been placed at \$473,725. The extent to which the extreme precautions taken in locating and selecting much of the wood used affected the original estimate must be left to conjecture. Mr. Williams seems to have raised well in advance a question as to the season of the year during which the ships' timbers should be cut for he goes on to prescribe that the timber "should be cut in the fall of the year as that would add much to its duration." In another letter under date of October 24th, 1794, written after the Government had definitely decided to embark

on a warship program, the Department stated, however, "Mr. Humphreys * * * has communicated to me in writing that January and February are supposed to be the best months to cut timber and recommends that the oak beams be cut at that time in order to give them the best possible chance of lasting."

Differences of opinion also arose over the question of using pine or oak beams in the frigates. In a letter dated October 17, 1794, written by the War Secretary to Tench Coxe, Esq., oak was given preference.

"Altho' I have an high respect for the opinion and judgment of Mr. Humphreys in naval architecture, yet in the present instance I am apprehensive that the experience in favor of Pine beams is not

so mature and conclusive as to warrant their use in the construction of the present frigates—Hereafter perhaps it may be done.

"But as far as my judgment is to have any influence I am of opinion that for the present it will be the wisest

Handwritten note: In answer to yours of the 13th regarding the dimensions of the masts and spars for the 44 and 36 gun frigates. I have the honor to observe that on the 2nd of last month I transmitted to the Comdant of the Treasury an estimate of the masts and spars for 44 gun frigates, a copy of which is here enclosed, and then I remarked that those for 36 guns would be but very little higher than those of 44 guns. I have reported the same observation but the same size will nearly answer for both but I will have prepared exclusively those for 36 guns altho' it would not be necessary to return a Contract for that purpose. I am, Sir, Sir,

Handwritten note: Dimensions of the masts, yards and spars of the frigates of 36 guns.

	ft.	in.	ft.	in.	ft.	in.
Fore mast	60	0	17 1/2	0	20	0
Main mast	50	2	15 1/2	0	17	0
Mizen mast	40	2	14	0	16	0
Fore yard	70	0	18	0	20	0
Main yard	50	0	16	0	18	0
Mizen yard	40	0	14	0	16	0
Fore spanker	30	0	12	0	14	0
Main spanker	20	0	10	0	12	0
Mizen spanker	20	0	10	0	12	0
Fore top mast	30	0	12	0	14	0
Main top mast	20	0	10	0	12	0
Mizen top mast	20	0	10	0	12	0
Fore top spanker	20	0	10	0	12	0
Main top spanker	20	0	10	0	12	0
Mizen top spanker	20	0	10	0	12	0

On this and following pages are interesting photographic copies of extracts from old, hand-written records now in the possession of the Navy Department, specifying kinds, dimensions and prices of timbers used in the original construction of the famous old man-o'-war—the U. S. S. *Constitution*.

course to adhere to the oak beams for the lower and gun decks, which when properly prepared has received the sanction of experience, time and the best maritime nations. The Spar or Quarter and orlop decks & etc., may be the best pitch pine—"

Later at the "earnest entreaty of Mr. Humphreys" pine beams were allowed "for the Lower and Gun Decks."

Also from a letter of Tench Coxe, Esq., dated November 14th, 1794: "I transmit you a copy of a letter from the Captains Barry, Dale & Truxton, giving their opinion of the importance of Live Oak being used for the floor and rising timber of the Frigates. Mr. Humphreys concurs in this opinion. This idea would have been brought forward by them at an earlier period, had they known that the live oak of a proper size could have been obtained for that purpose. Captain Barry's late visit to Georgia having convinced him of the prac-

"Some persons recommend that one or more persons in whom due confidence may be placed, should repair to the islands of Georgia, and contract with the proprietors of the timber as it stands for such parts as will serve the moulds, and that a sufficient number of ax-men with their provision, be sent from the northward, in order to cut the same, and transport it to the places where it is to be used. These persons assert that any contract made in Georgia or other parts to the southward, will be executed by negroes, whose indolence and carelessness will inevitably produce disappointment or loss."

As to the moulds he further directed: "These must be transported to the places where the timber is to be cut, otherwise mistakes would arise and disappointment, of course, ensue"; and further, "I have understood that in 1776 or 1777 the frames of the two 74 gun ships were cut under the authority of the United States, part

Length and Size of Beams for each Frigate of 44 Guns.

<i>Orlop Beams</i> <i>of best pitch pine</i>	<i>Lower Deck Beams</i> <i>of best white oak</i>	<i>Gun Deck Beams</i> <i>of best white oak</i>	<i>Upper Deck Beams</i> <i>of best pitch pine</i>
1 Beam 17 feet long 9 by 12	1 Beam 21 feet long 13 by 15	1 Beam 19.6 feet long 13 by 15	2 Beams 23 feet long 11 by 12
2 d° 18 d° 10 by 11	1 d° 26 d° d°	1 d° 30.6 d° d°	1 d° 29 d° d°
1 d° 18 d° d°	2 d° 30 d° 18 by 15	1 d° 34.6 d° d°	1 d° 30 d° d°
1 d° 21.6 d° d°	1 d° 34 d° 18 by 16	2 d° 38 d° d°	1 d° 31 d° 12 by 13
1 d° 23 d° d°	1 d° 35.6 d° d°	1 d° 38.6 d° d°	1 d° 31 d° d°
1 d° 25 d° 16 by 12	2 d° 36.6 d° d°	1 d° 35.6 d° 16 by 15	1 d° 32.4 d° d°
2 d° 27.2 d° d°	1 d° 37.5 d° d°	2 d° 36.6 d° d°	2 d° 33 d° 12 by 14
1 d° 29 d° d°	1 d° 38.6 d° d°	1 d° 37.6 d° d°	1 d° 33.6 d° d°
2 d° 30.3 d° d°	2 d° 39 d° d°	1 d° 38.6 d° d°	1 d° 34.2 d° d°
1 d° 33 d° d°	2 d° 40 d° d°	2 d° 39 d° d°	2 d° 34.8 d° d°
1 d° 35 d° d°	1 d° 41.6 d° d°	2 d° 40 d° d°	2 d° 35 d° d°
2 d° 35.4 d° d°	2 d° 41 d° d°	1 d° 40.6 d° d°	2 d° 35.6 d° d°
1 d° 36.6 d° d°	1 d° 41.6 d° d°	1 d° 41.9 d° d°	1 d° 35.9 d° d°
2 d° 37.8 d° d°	1 d° 41.6 d° d°	1 d° 41.4 d° d°	2 d° 36 d° d°
2 d° 38 d° d°	2 d° 42 d° 15 by 16	1 d° 41 d° d°	7 Beams in the wake of the long Comings 36 feet 11 by 12
6 d° 39 d° d°	1 d° 33 d° 14 by 16	2 d° 42 d° d°	7 Beams 36.6 feet 12 by 14
1 d° 32.6 d° d°	1 d° 24 d° 13 by 15	1 d° 36 d° 15 by 18	1 d° 36.6 d° 11 by 12
1 d° 22 d° d°		1 d° 25 d° d°	2 feet per long Comings 11 by 12

The longest Beams to spring benches & the rest by the same moulds.
The size of the above mentioned beams will be sufficient for the

ticability of obtaining the proper timber induces them to this application.

"Being myself also persuaded of the importance of this change, I request it may be adopted." * * *

No less particular were our forefathers in respect to the quality of the timber. Informing the Secretary of the Treasury in general in regard to the project of building the six frigates, one of which was the *Constitution*, the War Secretary, in a letter dated April 21, 1794, stated in part as follows:

"The live oak and red cedar must principally be obtained from the islands on the coast of Georgia. Some parts, however, may be obtained in North Carolina, although it is alleged that the farther South the live oak the better. * * *

at Sunbury and part at a place called Kilkenny, near the mouth of the Savannah River."

The troubles anticipated with colored labor were without foundation, for the Secretary of War in a letter to Mr. James Hacket, Naval Constructor, dated November 4, 1795, wrote: "The very great expence that would be incurred, prevents my consenting to your sending people from your part of the country to cut the timber as negroes can be obtained in Georgia who are good workmen with the ax, at vastly cheaper rate, and Mr. Morgan's report of their efficiency is very satisfactory."

From the letter of instructions to the constructors engaged in building the old ships we cull the following sage advice which is likewise good for our souls today:

"You particularly will be responsible to the Public:—

That no materials of any sort enter into the construction of the said ship but of the best quality."

"That all parts of the great fabric are mechanically and perfectly executed."

"It will be expected that the utmost harmony shall prevail among the different characters concerned in building, so that their united efforts may produce a satisfactory result." And from a letter from the Secretary of War to Henry Jackson, Esq., dated December 31, 1794: "I request you and Captain Nicholson to concur in the appointment of an Inspector, who shall be sworn to reject all which is not the most perfect quality."

In the reconditioning many interesting definitions of such things as "Black Streaks," "Thick Stuff," "Spirketings," "Clamps," "Ledges," and "Futhooks," will have again to become a part of the language.

Estimate of the probable expense of timber for a ship of 44 guns -

	Dollars	Cts
1 piece knot of 50 feet, 18 by 20	65	-
2 " 50 piece, 18 by 20 and 1 of 18 by 20 22 inch	75	-
1 stem post knee as long as can be had	20	-
1 stem between sides and 1 for stem	8	-
1 piece dead wood	4	-
1 " 29 in by 8 one hundred feet long	24	-
1 lower piece stem	16	-
5 pieces keelson	90	-
80 floor casing timbers and crossbars	350	-
2000 ft of 7 in wide 12 in wide common pine	300	-
2000 ft of 5 in wide	220	-
2000 ft of 3 in wide	180	-
6500 ft of 2 in by 4, 4 by 6, 6 by 8, 8 by 10	120	-
1 deck stem, 1 stem post, knees	16	-
1000 ft of 12 in wide for clamping post	220	-
600 ft of 6 by 10 in plank for timber strakes	80	-

The itemized, hand-copied estimate of the timber required for a ship of 44 guns was placed at \$21,463.65 and specified white oak, pine, live oak and red cedar. The white oak was to run 4.5 and 6 inches thick and from 9 to 14 inches wide. For the lower deck, 3½ inch heart pine planks with heart pitch pine beams 14 by 16 inches were figured upon. The live oak and red cedar were to form the knees and a great number of miscellaneous timbers. Treenails to the number of 50,000 were to be of "the best heart locust." In the light of prices which must be paid today for materials of the sizes and quality specified, the prices of 1794, some of which are here reproduced as copied in the old Navy records, are most interesting.

It is interesting also to note that the authorities in a letter from the War Office dated January 12th, 1797, to "Honble. Josiah Parker, Chairman of the Committee on the Naval Equipments," stated in part:

"While on this subject permit me to observe, that if Congress perceive advantages in the Extension of their Marine, or think it expedient that early precautions should be taken, to Secure to the United States a lasting

Live and Red Cedar

70 live oak lower futtocks and keelson	1500	at \$1.50	2250
170 " middle "	15	at \$1.50	2250
178 " upper "	17	at \$1.50	2550
200 " live timbers	15	at \$1.50	2250
200 " live half timbers	16	at \$1.50	2400
2 live oak & freight boards	28	at \$1.50	4200
8 house pieces	20	at \$1.50	3000
10 live timbers	24	at \$1.50	3600
1 upper piece stem	70	at \$1.50	10500
10 crossbars	5	at \$1.50	750
1 keelson piece	30	at \$1.50	4500
1 stem post	60	at \$1.50	9000
1 keelson	100	at \$1.50	15000
10 smaller "	35	at \$1.50	5250
2 corner cross timbers	25	at \$1.50	3750

fund of live oak for future use, it will be proper, that authority should be given for the purpose, as well as to purchase a Scite for a Navy Yard.

"The probability is that an Article so important to Maritime Nations as live Oak will be sought after with much avidity, and that the Land which is clothed with it may pass into hands that may make its attainment hereafter more expensive if not impracticable.

"But whether it is aright that the United States should be the purchaser of such Lands is a Question which no doubt you have examined."

Pine

10000 ft of 8 in heart pitch pine plank	7	at \$1.50	10500
7000 ft of 8 in " " "	8	at \$1.50	12000
2000 ft of 8 in " " "	6	at \$1.50	9000
6000 ft of 8 in common pine plank	320	at \$1.50	48000
200 ft of large pine beams	40	at \$1.50	6000
200 ft " " "	40	at \$1.50	6000
300 ft small ones	75	at \$1.50	11250
1150 ft " " "	75	at \$1.50	11250
1000 ft " " "	75	at \$1.50	11250

No doubt the above letter was the origin of the setting aside of certain tracts of land for Naval Use in the early history of our country, for eighteen days after it was written the gentleman addressed had requested estimates from the Department in regard to several matters and within three days, on February 2nd, 1797, the Secretary forwarded the following estimates:

"No. 2 * * * An annual supply of live Oak and Red Cedar sufficient for a Frigate and Ship of two Tier of Guns—will average 25,000 Cubical Feet * * * delivered \$25,000."

"3rd. An Estimate of a Sum supposed competent to

purchase a quantity of Land sufficient to yield live Oak by successive Growth equall to the Current demands of the United States.

"An Island (say on the River St. Mary) Containing about 16,000 Acres at 4 dollars per acre 64,000."

The lands were obtained but in recent years, by Act of Congress, those in Louisiana have passed out of the hands of the Navy Department. Those off the Georgia coast remain.

Delays in obtaining the selected kinds of timber desired seem to have developed early in the work, for a letter to Tench Francis, Esq., dated January 17th, 1795, and signed by "Tim Pickering, Secretary of War," reads:

"Your letter of this date, just now received, contains the same information, which you before verbally communicated. I then understood you that the *Deadwood* in question was to be laid immediately over the *keel* of the Frigate, consequently besides the durability which common oak may acquire by salting, it will be likely to get repeated salting by the leaking, which I presume happens in all vessels with whatever care, they are built. For this reason, and on the opinions of Mr. Humphreys and Penrose that common oak will answer well and of the latter, even that it is to be preferred, for the particular use in question, and because the Live Oak cannot be obtained without a very injurious delay, I think the common oak should be used. But let the direct salting of the timber be effectually performed.

P. S.—If common oak is not used in the case mentioned can Live Oak of sufficient size be obtained, or how soon? and must not the work on the Frigate be in the meantime suspended?"

Less than two months later, a circular letter dated March 6th, 1795, was sent to the Naval Agents with the following instructions:

"When orders were given for using only Live Oak in certain parts of the Frigates, that part which is here distinguished by the name of *Dead Wood*, was not mentioned because it was apprehended that Live Oak, of the size requisite for that use could not be obtained. It is now understood, that such Live Oak is attainable, and in consequence it has been determined to use it for those timbers of the Frigates which are called the *Dead Wood*—To this, you will be pleased to attend. If the *Dead Wood* for your frigate has been prepared of White Oak, it must be laid aside,—at least for the present, & until it shall be ascertained whether or not, Live Oak for that use can be procured."

By June of the same year, the question of timber supply seems to have become acute, for the War Office on June 29th, 1795, wrote Tench Francis as follows:

"The report of Colo. Copperthwait, returned from his mission to Georgia, relative to the live oak to be procured for the frigates. 'That it will now take one year to complete the quantity wanted,' induces me to change the plan of sending partial supplies to all the six Navy

Yards. By continuing that plan, the business in every Yard will be kept in a lingering condition, at a heavy expence, without completing anything. Had the difficulties of getting the live oak been foreseen—had it been known that full and regular supplies for two only, could be kept up—certainly, the carrying forward of six frigates at the same time, would not have been attempted. What should not have been begun, ought now that the facts are known, to be laid aside. Consequently, I shall direct four of the constructors to suspend their labours, or to dismiss all their hands for whom they cannot find constant and useful employment. Here I refer to any unwrought timber on hand, and to what may be expected by them in the vessels which shall be loaded wholly, or in part, when these new orders shall reach Mr. Morgan, for their respective Yards. If indeed, they should have on board only a small number of timbers (say about a dozen, in any one vessel) which have already been supplied to the two yards which are to be kept open, they may be sent to one or the other of those yards—which are those of Philadelphia and Baltimore. Those few surplus sticks may be reshipped, with any other surplus timber, to New York and Norfolk. Philadelphia and Baltimore are preferred for continuing the work, because those ports, especially the former, are the most likely to be cut off from winter supplies, by means of ice.

"Beside the saving of expence by changing the plan as now proposed, other advantages may arise. Two frigates may be completed many months before the whole, if carried on together, could be finished; and should there be a call for their service, they might be equipped, and sent to sea, while the rest were progressing. Some errors may be committed in the construction of the first frigates, or improvements suggested. Then in the residue, the errors may be avoided, and the improvements adopted. You will now be pleased to give the requisite orders for the live oak procuring for the frigates in conformity with the ideas here expressed; including in your orders the pine beams, and plank intended for the frigate building at Philadelphia."

The building of the *Constitution* in Boston, however, was not suspended. Under date of 21 August, 1795, Joshua Humphreys wrote Secretary of War Pickering as follows:

"I have considered Colo. Cleghorn's letters of the 9th July and 7th of August with attention, and am of opinion, that if some of the timbers were less than the directions, *sideways*, they may be put into the ship, if in every other respect they are good, and not too great a deviation from the dimensions; in this I would recommend discretionary power with Mr. Cleghorn.

"The objections that were stated to the strength of pine beams, were one cause why they were made one inch larger than at first intended; the dimension of the pine was never altered for the Oak, and as reducing the size of the Oak will tend to durability. I conceive there will be no impropriety in making them 15 by 17, which is

(Continued on page 613)

The Historic Forest of Compiègne

A Feudal Forest Made Famous by the Early French Kings, Jeanne D'Arc, Napoleon, and the Signing of the Armistice Which Ended the World War

By NELSON COURTLANDT BROWN

DRIVEN by fate, as it were, the Forest of Compiègne has been a scintillating landmark of Old World history. Here at the confluence of the Aisne and Oise Rivers, names synonymous of recent stirring events, stood a forest of vast area and of ancient, gnarled oaks, of stately beeches, picturesque birches and hornbeams and still later of larches, spruces and pines.

Here was an early Roman outpost, a stronghold of the legions which occupied northern Gaul and from which Caesar found the "Belgae" so difficult to conquer. Then it became a great seat of the Carolingians. Charlemagne used it as a great and favorite rendezvous. The early Frankish kings first built a palace at Compiègne and a "*maison de chasse*" or hunting lodge in the heart of the forest. St. Louis had a great predilection for Compiègne and in

1153 the local commune received a charter from King Louis VII. which is still preserved among the treasured archives in the Hotel de Ville or City Hall.

The forest is considered one of the most beautiful in all France and on account of its richness in "historic and archaeological vestiges" as the French say, it is coming to be a great center for the ever-increasing flock of American tourists to la belle France as well as a fa-

vorite holiday outing place for the French people themselves. Until the fourteenth century this forest was a part of the great and ancient feudal domain called the Forest of Guise which embraced among others, the present Forests of Compiègne, Chantilly, de Laigue, and of Villers-Cotterets. For many centuries it was used primarily as a vast hunting preserve for the French kings. During the Renaissance, Francis I, great builder of beautiful chateaux, made extensive additions to the palace and laid out eight great routes through the forest, centering

at the Puits du Roi in the very heart of the Forest of Compiègne. He used the ancient Roman highway of Brunehaut as the basis of one of them.

With the increase of population, came the opening of more agricultural areas and gradually the ancient forest became broken up into smaller units. But even

these are immense tracts of lovely wooded areas along the highlands and escarpments between the river valleys. The separate unit of the original woodland, called the Forest of Compiègne was first organized toward the end of the fourteenth century. Now bordering the Aisne and the Oise and extending south to the River Automne, the Forest of Compiègne measures about ten miles from east to west and about eight miles north and



A LOVELY SPOT IN ONE OF THE MANY ROADSIDE GLENS IN THE HEART OF THE COMPIÈGNE FOREST



THE OLD FEUDAL CASTLE OF PIERREFONDS IN THE FOREST OF COMPIEGNE

Built by Charles VI in 1390, partially destroyed under Richelieu and reconstructed by Napoleon, it is indeed a marvel of medieval architecture. This great chateau, with its eight towers, its dungeons and walls, was one of Napoleon's favorite residences, where he enjoyed isolating himself from the busy court life of Paris.

south and includes an area of over 36,000 acres, one of the large forests of France.

During the Hundred Years War this region was terribly afflicted by a succession of battles and sieges but

in those days the forest was the least to suffer. Between 1408 and 1430 the city of Compiègne, now a thriving little city of about 15,000 people, nestling peacefully on the edge of the forest, was besieged eight times by the



A GARDEN LAID OUT BY NAPOLEON

This is a view from the old Chateau of Compiègne, with the highly decorated park in the foreground and extending to Beaux Monts in the distance. Napoleon was particularly fond of long vistas of this kind.



FRENCH PEASANTS GATHERING LIMB WOOD UNDER THE ANCIENT RIGHT OF SERVITUDE IN ONE OF THE 100-YEAR-OLD STANDS OF EUROPEAN BEECH. LITERALLY NOTHING IS ALLOWED TO GO TO WASTE.

Burgundians, the Armagnacs or the English. The great heroine of this time, Jeanne d'Arc of Domremy first came to Compiègne in 1429 and in 1430 was captured by the English during a sortie from the walled city, and subsequently burned at the stake at Rouen. Later the Forest became the preferred scene of merry hunting parties by practically all the French kings down to the Revolution which fortunately spared the old palace. Here was signed the Treaty of Genoa giving Corsica to France in 1768 and as Napoleon was a Corsican, it presaged great changes in the later history of Europe.

Compiègne was a favorite residence of Napoleon and he made it his imperial seat in 1806. He was a great lover of the forest and the haunts of nature and while there he planted many trees, developed the forest, laid out many new routes and spent much time walking and riding through the forest lanes and bridle paths. In 1808, the exiled King Charles IV of Spain lived in the palace and here Napoleon first met Marie Louise. After Waterloo, General Blücher lodged in the palace for some time. Then followed many memorable events, royal marriages, autumnal hunting parties until the "terrible year" of 1870 as the French refer to it when 300 Prussians occupied Compiègne and carried off many valuable paintings and other souvenirs.

Finally during the World War, this Forest was the center of many of the bitterest engagements, for Soissons, Noyon, Roye, Lassigny and Montdidier are all close by. At the end of August, 1914, Marshall French established the British General Headquarters at Compiègne, but after the battle of Charleroi, the onrushing Germans forced a rapid withdrawal and the Uhlans arrived on the 31st of the month, the palace being occupied by General Von Kluck as his headquarters. A

reign of terror for the local population who could not escape followed. But only temporarily, for the great victory of the first Marne battle compelled a retreat and on the 12th of September the Germans withdrew to the north bank of the Oise and to the Forest of Laigue. Although occupied by the Allied troops, the city and the forest suffered terribly, for the front lines remained on the outskirts of the forest to the north until June, 1918, when the furious German attack once more advanced and was in turn almost immediately set back by the great Allied offensive that swept everything before it. For 35 months, the forest remained under the fire of the enemy cannons. In spite of this the Great General Headquarters of Marshal Foch was established at Compiègne from April 20, 1917, to the end of March, 1918.

It remained, however, for one of the truly notable events of the world's history to make the Forest of Compiègne a memorable spot—the signing of the armistice—for it was in the deep recesses of the forest, far removed from any city and well within the French lines that Foch met the German plenipotentiaries to end the most terrific conflict that mankind has witnessed. Here is a great monument with the tracks of the two trains



AN OLD CEDAR OF LEBANON ON BEAUX MONTS, SAID TO HAVE BEEN PLANTED BY NAPOLEON AND NOW POINTED OUT WITH GREAT PRIDE TO ALL VISITORS.

left to commemorate the event where Foch met Winterfeldt and Obendorf on the morning of November 7, 1918. After reviewing the terms laid down by Foch, in the Chateau of La Laigue, a few miles distant, the Germans received instructions by radio on the 10th of the month. About 12.30 that night the Germans returned to the forest near Rethondes where the first interview took place and after repeating the conditions and a discussion of the "armistice on land, on the sea and in the air," the historic signatures were made at 5.15 on the morning of the 11th. At once the glad tidings that bloodshed had ceased were heralded to the far corners of the earth.

This spot is now a Mecca of pilgrims from every country. On a huge granite slab is found a memorable and significant inscription which is translated from the French as follows: HERE ON NOVEMBER 11, 1918, SUCCUMBED THE CRIMINAL ORGY OF THE GERMAN EMPIRE CONQUERED BY THE FREE PEOPLES WHICH IT PRETENDED TO SERVE.

Aside from the wealth of historic interest, there is much to interest the American visitor in the Forest of Compiègne. Here the French have admirably demonstrated how forestry can be successfully and profitably practiced, how the aesthetic and utilitarian objects can both be fulfilled and how a forest can be developed to produce much needed fuel wood, lumber and other useful things as well as to serve as a great recreation ground for the enjoyment of the people. For, after all, our forests serve all these useful purposes.

Here one can see the results of years of technical forestry and what our forests of the East may some



ONE OF THE ANCIENT OAKS WHICH HAS PROBABLY STOOD FOR OVER 1000 YEARS IN THE HEART OF THE FOREST—THE SCENE OF MANY MERRY HUNTING PARTIES. THIS FOREST HAS BEEN UNDER CAREFUL MANAGEMENT FOR AT LEAST 300 TO 400 YEARS.

day resemble if we are provident and profit by the mistakes and successes of other nations that have progressed through the same stages of development with respect to the conservation, management and care of their forests and the great outdoors of nature.

Into this historic old forest, an American tree is being introduced. In April, 1924, about 70 pounds of Douglas fir seeds from the west coast were sent by Mr. Charles Lathrop Pack—enough to grow several million little trees to be used to replant some of the devastated areas of the forests about Compiègne. These are growing thriftily in the well laid out tree nursery close by the great Pierrefonds Chateau and near the quaint old village of Vieux Moulin. Not far from the Armistice Monument, a small plot of Douglas fir has already been planted with the native Scotch pine and the fir has demonstrated that it is splendidly adapted to the



MOST INTERESTING AND HISTORICAL SPOT ALONG THE ENTIRE BATTLE FRONT IS THE SCENE OF THE SIGNING OF THE ARMISTICE IN THE FOREST OF COMPIEGNE. THE INSCRIPTION ON THE MONUMENT READS: "HERE, ON NOVEMBER 11, 1918, SUCCUMBED THE CRIMINAL ORGY OF THE GERMAN EMPIRE, CONQUERED BY THE FREE PEOPLES WHICH IT PRETENDED TO SERVE."

climate and soils of the war devastated regions of northern France.

The Forest has been under a systematic plan of management since 1663 and the original document with its interesting data is now a part of the National Archives and held as a precious relic of the early days of French forestry. For the purpose of simplifying the administration, the Forest is divided into twelve separate compartments and each of these into a number of small working units. About 40% of the total area is composed of the French white oak, about 40% is the European beech and 20% is largely Scotch pine with a little birch, hornbeam and larch. It is owned and operated entirely by the French Government and is an admirable example of the possibilities of efficient state management of forests—similar to our own National Forests as handled by the United States Forest Service. It is under the supervision of a Forest Inspector similar to our District forester and an Adjutant Forest Inspector who is much like our Forest Supervisor. The field force is composed of four forest brigadiers or rangers and twenty forest guards who look after the planting, cultural thinnings, aesthetic development, the removal cuttings, the protection and breeding of the game—all under the supervision of the Forest Inspectors.

There are fifty miles of well maintained highways which make accessible every part of the forest to the public as well as for the forestry operations such as the hauling of logs. A large tract about the Chateau and the city of Compeigne as well as various beauty spots, ancient historic trees, charming nooks and glens are reserved as a park in which no timber felling is permitted and the aesthetic features are enhanced to their full beauty, while in the remainder of the forest thinnings to aid the growth of the trees and keep them in good condition are regularly made and the mature trees are removed at 120 to 150 years of age. The felled areas are replanted immediately or provided with natural reforestation under a very skillful method called the shelterwood system. The latter applies particularly to the beech in which tree planting is seldom necessary.

Here also may be seen most interesting examples of the ancient rights of the peasants and others to use the forest and gather up the dead fallen limbs and other forest litter. These old rights are called the "*droits d'usage*" or servitudes which have been in existence since the earliest times—even before the feudal customs and privileges of the peasantry were recognized legally. These include the pasturage of a certain number of sheep and cattle for the people of each of the neighboring villages such as Rethondes, Pierrefonds, St. Pierre, La Croix de St. Ouen, by virtue of the ancient customs and judicial decisions of the *Code Forestier*, Colbert's great contribution to France's system of forestry; the right of the peasantry to gather any dead or dry branches or limbs that have fallen in the forest and an old right en-

joyed by the Hospice of Pontoise to 200 cords of fire wood annually and the Hospice of Compeigne to 250 cords of wood in addition to the litter picked up from the forest floor. Fuel of all kinds is exceedingly scarce and expensive so this old servitude is of great importance to the people of the village communities in and about the Forest. Old men and women or even children are frequently seen gathering faggots or bundles of limb wood to keep, literally, their home fires burning.

The Government sells the ripe and mature timber or the thinnings to the highest bidder on the stump, the foresters marking the trees to be felled. Very strict regulations govern the cutting of low stumps, careful and complete utilization of the wood, the leaving of seed or mother trees and the protection of seedlings and saplings from injury. Trees affected by insect or fungous damage are carefully watched and quickly removed if deemed necessary. Although many visitors and recreationists visit the forest regularly there are rarely any fires started. For the enjoyment of the people the main highways as well as the by-paths and woodland lanes are posted with signs giving the name of the road, the distance to nearby points and the direction to these and to the special points of interest. For example the massive old cedar of Lebanon on Beaux Monts has a sign on it indicating that Napoleon planted the tree in 1810. One of the most interesting spots is the old feudal castle of Pierrefonds which stands on the eastern edge of the forest. This was built by Charles VI in 1390, partially destroyed under Richelieu and reconstructed by Napoleon. It is indeed a marvel of medieval architecture. The eight towers, dungeons and walls are particularly beautiful examples of the best of the early castles. The towering chateau stands out as a shining jewel of feudal architecture in the bright sunlight against a deep background of the sombre green oak and pine forest which surrounds it.

For the practical minded, the Forest of Compeigne is also a shining example of the profit making possibilities of forestry. During the days of the hunt and the chase, no thought of management for profit was even considered. But with the growing scarcity of wood and fuel supplies, this forest has come into prominence as a successful business property. For instance, during the year 1923, the receipts from the sales of wood were 2,173,618 francs, while the leases for hunting and fishing privileges brought in 152,294 francs. The expenses for forest improvements, silvicultural operations, planting, etc., were 136,392 francs and the salaries of the forest officers, 160,000 francs, making a total expense of 296,392 francs. This left a profit of 2,029,520 francs for the year. At normal rates of exchange this means a profit of \$405,905, which is a very handsome figure for practical forestry operations and an excellent example of what we may hope to accomplish in some of our own national, state or municipal forests in some future day.



The Beetle Beats the Pine

In a Ten-year Struggle for Supremacy in the Land of the Lodgepole

BY JAMES C. EVENDEN
United States Bureau of Entomology

LODGEPOLE pine forests covering thousands of acres form one of the main sources of timber supply for the mining and agricultural industries of Montana. Lodgepole pine is not a large tree. In merchantable stands the bulk of the trees measure from ten to eighteen inches in diameter, but they stand many to the acre, and they are exceedingly valuable trees in more ways than one. For years, trainload after trainload of mine timbers of lodgepole pine have gone into the great mines of Butte and Anaconda. Millions upon millions

of hewed ties have laid the road beds of many of the railroads crossing the northern Rockies. Lodgepole pine firewood and farm timbers have built and developed great numbers of Montana's farms and ranches. These industries — mining, railroads and agriculture — are big factors in the big West.

Is this source of timber supply to be brought abruptly to an end by a little insect scarcely larger than the eye of a field mouse? After careful study of the situation and the battle lines as now drawn between the beetle and



ENEMY SCOUTS ADVANCE INTO NEW TERRITORY

The first evidence of an increase of infestation in a lodgepole pine forest is the appearance of scattered red topped trees. The red topped trees appear white in the above photograph.

the pine, it looks very much as if the former has all but written the death warrant of Montana's extensive forests of virgin lodgepole pine.

For the past ten years great areas of these forests have been dying from the attacks of this concealed and little known enemy. Only by traveling through the Blackfoot Valley of the State and seeing with one's own eyes the thousands of timbered acres now red with discolored foliage, can the seriousness of the situation be fairly visualized. The great splotches and streaks of discolored foliage which characterize the lodgepole pine forests, are due to the work of the mountain pine beetle (*Dendroctonus Monticolae*) a small but destructive black insect, perhaps a fifth of an inch in length, which attacks in countless numbers and, by boring between the bark and wood, girdles the trees and eventually causes their death.

During the season of 1910, for some reason unknown, outbreaks of this insect occurred at two places in Montana some 120 miles apart. In 1912 and 1913 adequate control measures were instituted for the reduction of the outbreak in the Big Hole Basin, Deerlodge National Forest, which very successfully checked the spread of the insects from this point. Inasmuch as it is impossible to save a tree when once attacked by these beetles, the infested trees were peeled in order that the broods which lie between the bark and the wood, might be destroyed and their development and subsequent attacks prevented. However, in the north at Swan Lake, Flathead National Forest, though similar control work was conducted, perhaps not so thoroughly since it did not include all of the infestation, very poor results

were obtained and the epidemic once established spread rapidly to the north and south along the west side of the Continental Divide.

For years this infestation has continued to spread to the north and south, leaving in its wake a devastated forest of dead trees, which will remain a fire trap for years to come. An examination of these areas after the infestation had passed, showed that a large percentage of the trees over six inches in diameter, which are the favored hosts for the insects, had been killed. This loss involved from 40 to 70 per cent of the total volume of the stand. It is impossible even to estimate the value of lodgepole pine and yellow pine, the more valuable species, which were destroyed during the course of this epidemic. It is sufficient to say that it runs into millions of dollars.

Just how these infestations spread is not clearly known. A popular conception and perhaps a probable one likens it to the attack of an army in modern warfare. Miles ahead of the main body a few scouts appear in scattered trees throughout the area. The following year strong combat patrols move up and take over these positions and again the scouts go forward into new regions. These patrols may establish themselves in small groups of infested trees in sheltered places or consolidate the positions gained by the scouts. The following year the scouts and patrols again move forward and the main body of the attack advances and takes over the invaded territory.

By 1922 the infestation in the north had spread through the Flathead and Blackfeet National Forests, and as it passed into Canada was forgotten. However,



THE MAIN BODY OF THE ENEMY SWEEPS INTO THE AREA

The second or third year following the start of the outbreak in a lodgepole pine forest, the entire mountain side becomes red with the discolored foliage of the dead trees. In the above photograph practically every tree above six inches in diameter has been killed.

in the south a different scene was being enacted. As the infestation spread from its nucleus at Swan Lake toward the valuable timber stands of the Missoula, Deerlodge, and Bitterroot National Forests, the danger was realized and Forest officers began to map out a plan of campaign. But long before this, the outbreak had reached such magnitude that treating all of the infested trees was out of the question, because of the expense involved.

So year after year the advance of the insect was viewed with alarm, and it

was hoped against reason that in some way these timber stands would be spared. But during the winter of 1923-1924 it was found that the enemy was already in the valuable lodgepole stands of the southern Missoula Forest. In a desperate effort to protect this timber a novel and untried plan of defense was inaugurated. A line was drawn across what was assumed to be the head of the infestation, and a plan of operation adopted which called for the treatment of all infested trees to the south, while in "No Man's Land" the beetles were to be allowed to ravage unchecked. In pursuance of this plan, some eleven hundred trees were treated in May, 1924, which it was believed included all of those infested south of the line.

Since this was an emergency situation, it was necessary to institute the work on existing data without first making a detailed survey of the region. Much to the sorrow of those connected with the project, but no doubt to the joy and happiness of the beetles, it was later found that these data were very inaccurate. Later in the season, a survey was made of the entire area with startling results. It was found that the infestation had progressed much farther than had previously been as-

sumed and that in some places severe epidemic conditions existed which had been established for several years. As it would have required at least \$150,000 to treat all of the infested trees, it was recommended that

the project be dropped, its continuance being no longer economically feasible. It is, however, fully realized that the making of this recommendation meant the signing of the death warrant of large areas of the mature lodgepole pine forests of Montana. It is also feared that this warrant is so broad in its scope that the



A VISIT TO THE BATTLE FIELDS

The infestation leaves in its wake a devastated forest with nearly all of the lodgepole pine above six inches in diameter dead. This photograph shows a forest of large trees where the destruction has been complete.

timber of the Big Hole Basin, which was adequately protected through control measures in 1913, will be included unless a renewed attack instituted by the Bureau of Entomology in the spring of 1925, and planned to cover several years of continuous effort, is successful.

The economics of this forest-ravaging epidemic is felt in the loss of the valuable mature timber which should be available for the market at this time. Yellow pine is, of course, the most important lumber resource of the state, whereas tremendous volumes of lodgepole are used yearly as railroad ties and mining timbers. It is true that upon these devastated lands Nature will grow new forests, but many years are required to produce trees of merchantable size.

Thus it has come to pass in the last ten years that by adequate and thoroughly applied control measures the infestation in the Big Hole Basin was checked. But in the north, where the outbreak was not regarded so seriously and the control work was perhaps less thorough, the epidemic became established and spread southward some 120 miles where it now threatens to destroy even the highly valued forests which were given protection years ago.





THE "LITTLE SQUARE BOX" THAT MARY SAW, PERCHED ON THE TOPMOST PEAK OF THE DISTANT MOUNTAIN

WE ARE just a common husband and wife; or wife and husband—as you will. In humble capacity, we both served in the late war, on either side of the Atlantic. We had both worked hard before the war, worked hard after. We elected ourselves as eligible for what parsons and professors term a Sabbatical Year—two years if so we were inclined—time of our very own, in which to do anything or nothing; time for our souls to grow, if you like to put it that way.

Somehow, we were urged across the continent to find a resting place in Idaho, at a spot called Smith's Ferry; on a flat where one wall of a canyon breaks. We are glad we came to Idaho.

Smith's Ferry has mountains north, south, east and west of it. All last summer, and far into fall, Mary was intrigued by what appeared to be a basin inverted upon a topmost peak, on which, as a baker's cap, perched a little square box.

Mr. James Whitaker keeps the hotel at Smith's Ferry. After two days, you never call him anything but Jim. The strain of the pull of the little square box at the top of the distant peak became unbearable. We consulted Jim.

"Oh, that's the Lookout on Packer Jack. Johnny Gravey stays up there all summer, watching for smoke of forest fires. At the first sign, he telephones the smoke-chasers—the fire wardens. You don't want to miss meeting Johnny."

"A Lookout"

By

MARY AND JOHN ARTHUR

Mary's husband suggested, "Maybe it's Johnny who's exerting that steady pull, Mary."

"Likely as not," said Jim. "To hear him tell it, Johnny, at his prime, was a winner with the women."

"Maybe. But I'm going to that square box before another week is out," pronounced Mary.

"That'll be easy. Good hikers, you folks? As the crow flies, it's five miles to the Lookout; maybe eight by a trail that's easy as trails go. Just a minute." Jim crossed to the 'phone.

"Get me Packer Jack Lookout. . . . That you, Johnny? . . . Yes, it's Jim. Here's two friends of mine from Chicago. . . . No, not ladies, gentleman and wife . . . have heard of you and want to make you a visit. . . . No, they didn't hear of you in Chicago—since they came here. . . . How's tomorrow, folks? . . . All right, Johnny, they'll be up some time tomorrow." Jim came from the 'phone.

"Johnny says for you to go up tomorrow and stay all night. Says not to take anything but a can of milk. Says he's coming down on the first shower, so'll be glad of someone to help eat up the grub that's left."

"But where shall we sleep?" asked Mary, in some alarm.

"That box has two floors. I guess Johnny will give you his bunk and take a mattress upstairs in the observatory."

"But it will be imposing on the man—a perfect stranger."

"He won't be a perfect stranger more'n a minute after you meet him. That's Johnny. Also, he's slept out of beds more'n he's slept in 'em. He'd sleep on the roof for the chance to find new folks to listen to him. Folks around here won't listen any more. He's bent their credulity."

"So he strains one's credulity?"

"Go up and see for yourselves," laughed Jim.

The trail wound up along a brook which wound down; it crossed the brook; there was a stiff climb. Suddenly there broke into view a lofty dome, devoid of trees—the inverted basin Mary had seen from below. The little square box showed as a two-story structure of heavy logs, the upper story all windows. The Smith's Ferry flats and canyon walls lay beneath; so far beneath, said Mary, that the two-story depot building was now the tiny square box—flattened to the ground.

Johnny Gravey, hands outstretched, awaited us. His greeting was as toward a long lost sister and brother. We must come right in and rest from our long climb.



THE BEAUTIFUL PICTURE OF THE VALLEY, STRETCHING AWAY TO THE SOFTLY ROLLING HILLS BEYOND, AS WE SAW IT FROM PACKER JOHN LOOKOUT

To Mary, Johnny accorded a certain throne, draped with pelts. Only the highly distinguished, Johnny declared, were permitted to occupy that throne. Her husband might sit upon Johnny's bunk.

Johnny was plump—rosy. He had the shining blue eyes of a boy soprano—the boy who gets away with any devilment. It would be hard to guess his age, for he seemed to possess the perennial spirit of youth. Admitting to sixty-five he might have passed for forty-five. He was the first white child born in Northern California. He was, and had been, more things than his visitors, taking breath after their long hike, could comprehend in their first ten minutes of sociability with Johnny.

Before they climbed the ladder to the observatory, "the lady" must use Johnny's cold cream—indeed she must—and a little of the special powder he kept for distinguished ladies. After the journey, the cream and powder would revive her complexion and protect it against the winds that came through the upper windows. Mary did not use cold cream once a year; powder hardly ever; but she did use them on this occasion.

As a kingdom of which he were king, Johnny exhibited the glorious panorama. He named every ridge, every peak, every stream and gulch; named them as though each were his, and each, as he named it, his choicest possession. It was indeed the most glorious prospect we had ever, in our lives, beheld. Mary rejoiced that she had not

thwarted that strange, strong urge toward the little square box on the mountain top.

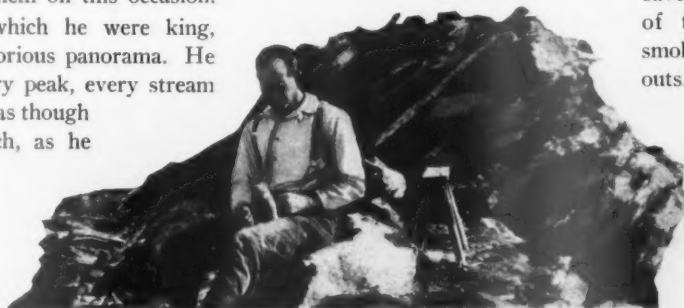
"So you can know, ma'am, why it is I'm never lonesome."

We were greatly interested by Johnny's instrument for defining the position of smoke. On a circular platform was an oriented map of which the Lookout was the center—Johnny rolled that impressive word "oriented." The rim of the platform was a metallic band divided into three hundred and sixty degrees of the circle, with a vernier for ascertaining the minutes. A circular frame revolved above the plat. This frame bore two uprights, opposite, one with a vertical slit, the other a vertical wire corresponding to the slit. Johnny explained, with pride of scientific knowledge, how you sighted the wire, through the slit, upon the smoke, took your reading and telephoned to headquarters or the fire warden. Some other Lookout also spotted the smoke; the intersection of two readings, found by strings attached to a map, demarked the exact location of the fire.

Millions of feet of timber and millions of dollars were saved annually by the work of the Forest Rangers, the smoke-chasers and the Lookouts. As he told it, you felt that Johnny was well aware of his claim upon those millions.

For dinner—Grouse *a la* Packer Jack. Huckleberry Pie.

Until past midnight we listened to a recounting of the high-



"JOHNNY GRAVEY" ENTERTAINING HIS LITTLE PAL, THE CHIPMUNK

lights of Johnny's per-
fervid career. We told
nothing of our careers—
Johnny gave no opportu-
nity. Our recollection of
Johnny's recital was some-
what as follows:

"Yes, ma'am, I've had
several fortunes; used to
make a fortune every
year; summer—prospect-
ing; winter — trapping.
Placer gold? I would pan
my fifteen or twenty
thousand in a summer,
and, if I worked winter,
four or five thousand
from the pelts; and that
was real money those
days. I never had over
twenty thousand at one
time—that was my stake
limit. Then it was off to
'Frisco! And three
months; yes, I've known
it to be one month, I was
busted. Gambling—wom-
en and liquor on the side.
And when I was broke,
I'd go to Lucky Baldwin.

. . . 'Oh, you're broke again! Want to get up-state?
How much do you need?' . . . I'd say three hundred
and he'd give me four. So it was back on the job. Pan
or trap another 'fortune—easy in the good old days.'

"Yes, I was married for a time; had a saloon six
years—never drank a drop while I kept saloon. The
wife died—no children—back to the old life again. Get-
ting old now, though. This life on the Lookout suits
me. Don't cost much to live here. But there may come
a summer when I won't be on a mountain top. I'll be
where I know. One more fortune! And they won't
get it away from me this time."

Johnny ran down at last. "Forgive and forget my
talking so much. I go weeks without saying a word, and
it gets backed up on me." He showed us where we were
to sleep: "I hope you folks are fond of each other.
That bunk's rather narrow for two."

Sleep was difficult. Johnny's recital; the strange
cabin; a curious light from a misty moon. As we had
made the last mile of the ascent, we noticed clouds.
The clouds, while Johnny was talking, had been gather-
ing. We did, at last, find sleep—not long sleep. We
were warned by the wind—first moaning, then roaring.
Rain splashed the windows. Lightning! Thunder as
though the square box were split by a giant's ax. The
cabin creaked; rocked; we feared it would be torn from
its foundation.



A BIT OF THE SPLENDID TIMBER WE WENT
THROUGH ON OUR WAY UP TO THE LOOKOUT—
TYPIFYING THE GREAT PROPERTY VALUE GUARDED
EACH YEAR BY THE RANGERS, LOOKOUTS AND
"SMOKE CHASERS" ON THE NATIONAL FORESTS

Johnny called through
the trap door: "Don't be
scared, folks. This hut is
anchored with cables.
Wait; I'll be down."

Johnny came down;
half dressed. He went to
the telephone. There was
a flash of lightning. John-
ny was knocked flat. We
jumped from the bunk,
raised Johnny, who came
to his senses and seemed
none the worse. "Ought
to have known better than
to be monkeying with
phones — a storm like
this."

Johnny climbed the lad-
der. The storm died. We
slept.

Someone else must de-
scribe that sunrise. Mary
said it drew her toward
heaven.

"But, Johnny?"—Mary
was calling him Johnny
by now — "How do you
keep things so clean?
Where do you even get

the water up here on a mountain top?"

While Mary's husband took Johnny's twenty-two—
for a grouse—Johnny showed Mary the spring, a quar-
ter of a mile below. From a wire by the water hung
a washboard and scrubbing brushes. Johnny had to
hang them up or the porcupines would eat them. "Don't
ask me, ma'am. The woods are full of trees—yet those
darned things have to eat ax-handles, brooms, brushes;
anything useful."

Before "her man" returned, Johnny drew out a can-
vas bag, brought forth knitted articles, drawn work,
pieces of exquisite embroidery. "That's one way I have
of passing the time. I get tired reading 'The Female
Bandit.' I didn't want to show them before the mister.
He mightn't understand. I want you to keep this hand-
kerchief, ma'am, and wish me luck whenever you use
it." He insisted upon Mary's keeping a handkerchief
whose threads were drawn so delicately, it had become
as fine lace.

"A prospector! A trapper! A gambler! A chef *par
excellence!* A maker of fine lace! Where would I, in
the East, ever meet such a man!" mused Mary.

There's a sequel. Came spring—a letter from Johnny
telling us that he had "gone off," had recommended us.
We are now lookouts! May we do one-half as well as
Johnny Gravey.



FUNDAMENTALLY IMPORTANT
TO OUR NATIONAL CHARACTER
IS THE PRESERVATION
OF THE WILD

The Last Stand of the Wilderness

By
ALDO LEOPOLD



THUNDER CLOUDS THROUGH
A FOREST VISTA IN LITTLE
FREQUENTED BACK COUNTRY
OF CALIFORNIA

*A Plea for Preserving a Few Primitive Forests, Untouched by Motor Cars
and Tourist Camps, Where Those Who Enjoy Canoe or Pack
Trips in Wild Country May Fulfill Their Dreams*

HOW many of those whole-hearted conservationists who berate the past generation for its short-sightedness in the use of natural resources have stopped to ask themselves for what new evils the next generation will berate us?

Has it ever occurred to us that we may unknowingly be just as short-sighted as our forefathers in assuming certain things to be inexhaustible, and becoming conscious of our error only after they have practically disappeared?

Today it is hard for us to understand why our prodigious waste of standing timber was allowed to go on—why the exhaustion of the supply was not earlier foreseen. Some even impute to the wasters a certain moral turpitude. We forget that for many generations the standing timber of America was in fact an encumbrance or even an enemy, and that the nation was simply unconscious of the possibility of its becoming exhausted. In fact, our tendency is not to call things resources until the supply runs short. When the end of the supply



Courtesy United States Forest Service

THE PRESERVATION OF THE WILDERNESS SUPPLIES A UNIQUE NEED IN RECREATION. UNFORTUNATELY, IT IS A NEED THAT MUST BE MET BY FORESIGHT. ONCE DESTROYED, IT CANNOT BE RE-CREATED. "WILDERNESS" IS THE ONE KIND OF PLAYGROUND WHICH MANKIND CANNOT BUILD TO ORDER. THIS ROADLESS AREA LIES IN THE GILA NATIONAL FOREST IN NEW MEXICO, ALREADY UNDER CONSIDERATION FOR INCLUSION IN THE WILDERNESS PLAN



Courtesy Rainier National Park Company

A SECTION OF THE PARADISE VALLEY CAMP GROUNDS

To those who do not object to the crowded conditions and enjoy the more artificial forms of outdoor life, the average large motor camp, with most of the conveniences of civilization, offers everything that is to be desired.

is in sight we "discover" that the thing is valuable.

This has been true of the latest natural resource to be "discovered," namely the group of things collectively called Outdoor Recreation. We had to develop tenements and tired-business-men before Outdoor Recreation was recognized as a category of human needs, though the use of the outdoors for recreational purposes is as old as the race itself. This "discovery" that we need a national policy on Outdoor Recreation is in fact so new that the ink has barely dried on its birth certificate. And, as usual, we are becoming conscious of thousands of wasteful errors in the past handling of recreational resources which an earlier discovery might have avoided.

I submit that this endless series of more or less post-mor-

tem discoveries is getting rather tedious. I for one am piqued in my sense of national pride. Can not we for once foresee and provide? Must it always be hindsight, followed by hurried educational work, laborious legislative campaigns, and then only partially effective action at huge expense? Can not we for once use foresight, and provide for our needs in an orderly, ample, correlated, economical fashion?

The next resource, the exhaustion of which is due for "discovery," is the wilderness. The purpose of this article is to show why the wilderness is valuable, how close it is to exhaustion and why, and what can be done about it.

Wild places are the rock-bottom foundation of a good many different kinds of outdoor play, including pack and canoe trips in which hunting, fishing, or just exploring may furnish the flavoring matter. By "wild



Courtesy United States Forest Service

CARVED OUT OF THE WILD

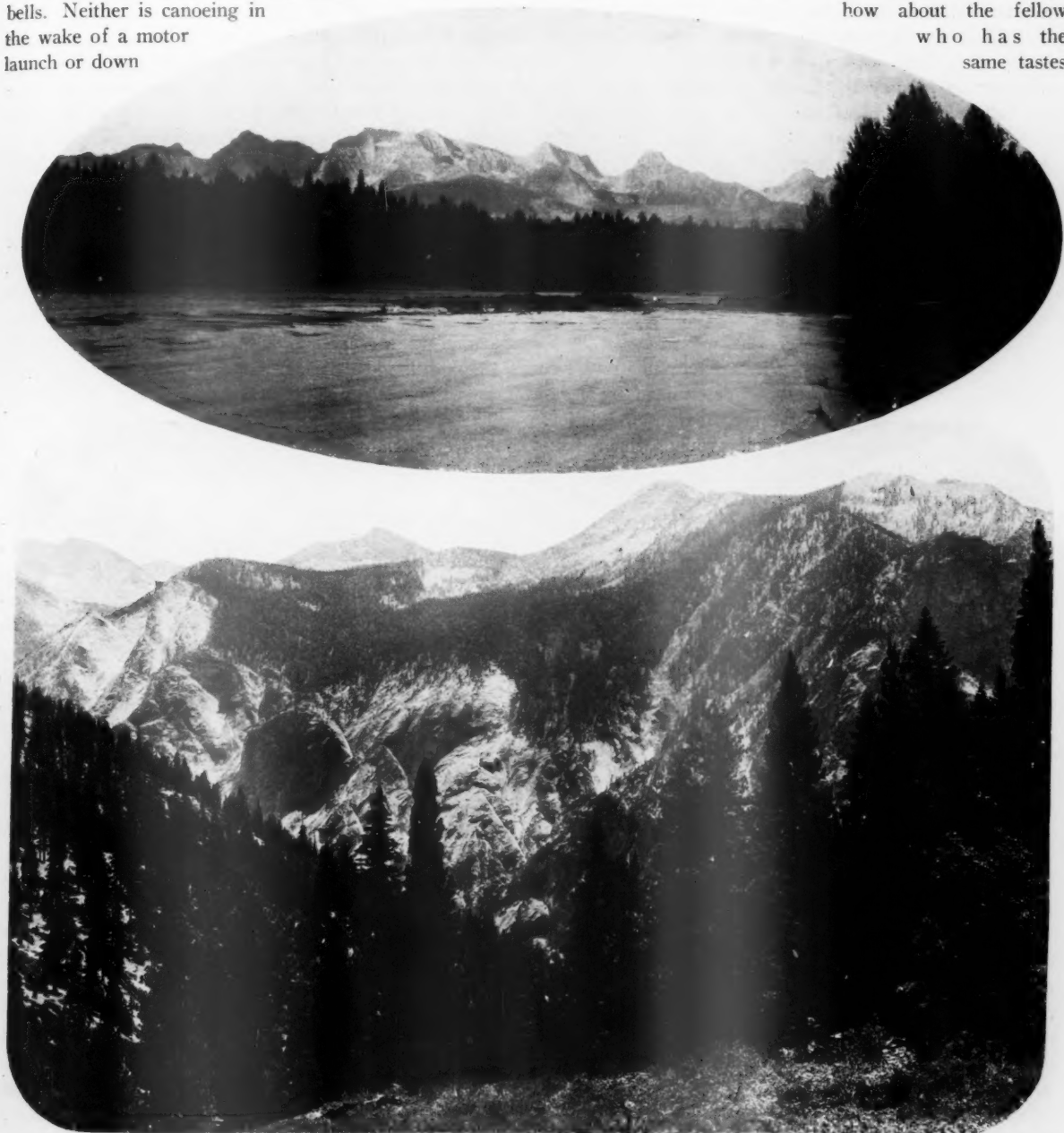
But in contrast, the quiet and harmony, peace and renewal so necessary to many, is to be found only in such spots as this in the deep woods of Minnesota,—in roadless ways stretching far into the wilderness.

places" I mean wild regions big enough to absorb the average man's two weeks' vacation without getting him tangled up in his own back track. I also mean big areas wild enough to be free from motor roads, summer cottages, launches, or other manifestations of gasoline. Driving a pack train across or along a graded highway is distinctly not a pack trip—it is merely exercise, with about the same flavor as lifting dumb-bells. Neither is canoeing in the wake of a motor launch or down

a lane of summer cottages a canoe trip. That is paddling—and the supply is unlimited.

Is the opportunity for wilderness trips valuable? Let us apply the test of the market price. Any number of well-to-do sportsmen are paying from \$3,000 to \$10,000 for a single big-game trip to the wilderness regions of British Columbia, Alaska, Mexico, Africa and Siberia.

It is worth that to them: Now how about the fellow who has the same tastes



Photographs by Herbert W. Gleason and R. E. Marble. Courtesy The National Park Service

SHALL OUR WONDERFUL WILDERNESS COUNTRY DISAPPEAR FROM AMERICA BECAUSE WE LACK THE VISION TO SEE ITS VALUE?

In the face of the rapid disappearance of our truly wild country, we cannot afford to longer ignore the need for action. We must at once formulate a definite national policy for the permanent establishment of wilderness recreation grounds. Unless this is done, our larger areas of wilderness will mostly disappear within the next decade. This photograph shows the upper part of the South wall of Kings Canyon, on the John Muir Trail and the oval inset above is of Kintla Lake, in beautiful Glacier National Park.

for wilderness travel but a lesser pocketbook, and who probably has more real need of recreation? He simply has to do without, subsisting as best he can on polite trips to summer resorts and dude ranches. Why? Because the old wilderness hunting grounds, formerly within his reach, no longer exist, having been opened up by motor roads.

Right here I had better explain that motor roads, cottages, and launches do not necessarily destroy hunting and fishing, but they destroy the wilderness, which to certain tastes is quite as important.

Neither do I imply that motors, cottages, summer resorts, and dude ranches are not in themselves highly valuable recreational assets. Obviously they are. Only they are a different *kind* of recreation. We need to preserve as many different kinds as we possibly can. The civilized kinds tend to preserve themselves through the automatic operation of economic laws. But wilderness travel is a kind that tends to disappear under the automatic operation of economic laws, just as the site for a city park tends to disappear with the growth of a city. Unlike the city park, however, the wilderness can not be re-created when the need for it is determined by hindsight. The need for it must be determined by foresight, and the necessary areas segregated and preserved. Wilderness is the one kind of playground which mankind can not build to order.

Since the pilgrims landed, the supply of wilderness has always been unlimited. Now, of a sudden, the end is in sight. The really wild places within reach of the centers of population are going or gone. As a nation, however, we are so accustomed to a plentiful supply that we are *unconscious* of what the disappearance of wild places would mean, just as we are unconscious of what the disappearance of winds or sunsets would mean. The opportunity to disappear into the tall uncut has existed so long that we unconsciously assume it, like the wind and sunset, to be one of the fixed facts of Nature. And who can measure the influence of these "fixed facts of Nature" on the national character? In all the category

of outdoor vocations and outdoor sports there is not one, save only the tilling of the soil, that bends and molds the human character like wilderness travel. Shall this fundamental instrument for building citizens be allowed to disappear from America, simply because we lack the vision to see its value? Would we rather have the few paltry dollars that could be extracted from our remaining wild places than the human values they can render in their wild condition?

A national policy for the establishment of wilder-

ness recreation grounds would in some instances be easy to put into operation if we act at once. The National Forests and Parks still contain a few splendid areas of relatively low value for other purposes, which could be readily segregated as roadless playgrounds. Wilderness areas in the National Forests would serve especially the wilderness-hunter, since hunting is not and should not be allowed in the Parks. On the other hand, wilderness areas in the National Parks would serve all kinds of wilderness-lovers except the hunter. In general, I believe that both the Forest Service and the Park Service would be receptive to the wilderness idea, but neither can be expected to execute it with the vigor and despatch necessary to save the situation, unless they can point to a definite crystallized public demand for such action. The public being still largely unconscious that the end of the wild places is in sight, there is as yet no articulate public expression for or against the wilderness plan. Meanwhile the remaining wild areas in both the Forests and Parks are being pushed back by road construction at a very rapid rate,—so rapid that unless something is done, the large areas of wilderness will mostly disappear within the next decade.

This paper is a plea for a definite expression of public opinion on the question of whether a system of wilderness areas should be established in our public Forests and Parks.

Let me illustrate what I mean by saying that administrative officers can not effectively execute a wilderness policy without the help of a definite public demand. District Forester Frank C. W. Pooler has already tentatively designated the headwaters of the Gila

River, in the Gila National Forest, New Mexico, as a wilderness area. It is the last roadless area of any size in the Southwest containing all the best types of mountain wild life and scenery, and by reason of its exceedingly broken topography is the logical location for a wilderness playground. It is Mr. Pooler's belief that the Forest Service should withhold extending its

road system into the Gila Wilderness, and should withhold granting permits for summer homes in it, until the whole wilderness idea has had an opportunity to crystallize into a definite policy, under which a final plan for handling the Gila Wilderness can be laid down.

Now suppose that a timber operator were to apply to build a railroad into this area thus tentatively reserved for wilderness purposes. Suppose the District Forester were to reply: "No. This area is being held

SPEAK OUT

Action to retain our spots of wilderness will only come when those who believe that this should be done speak out again and again. Mr. Leopold's appeal for such action deserves an expression from YOU and you are urged to register your opinion in letters to

AMERICAN FORESTS AND FOREST LIFE.

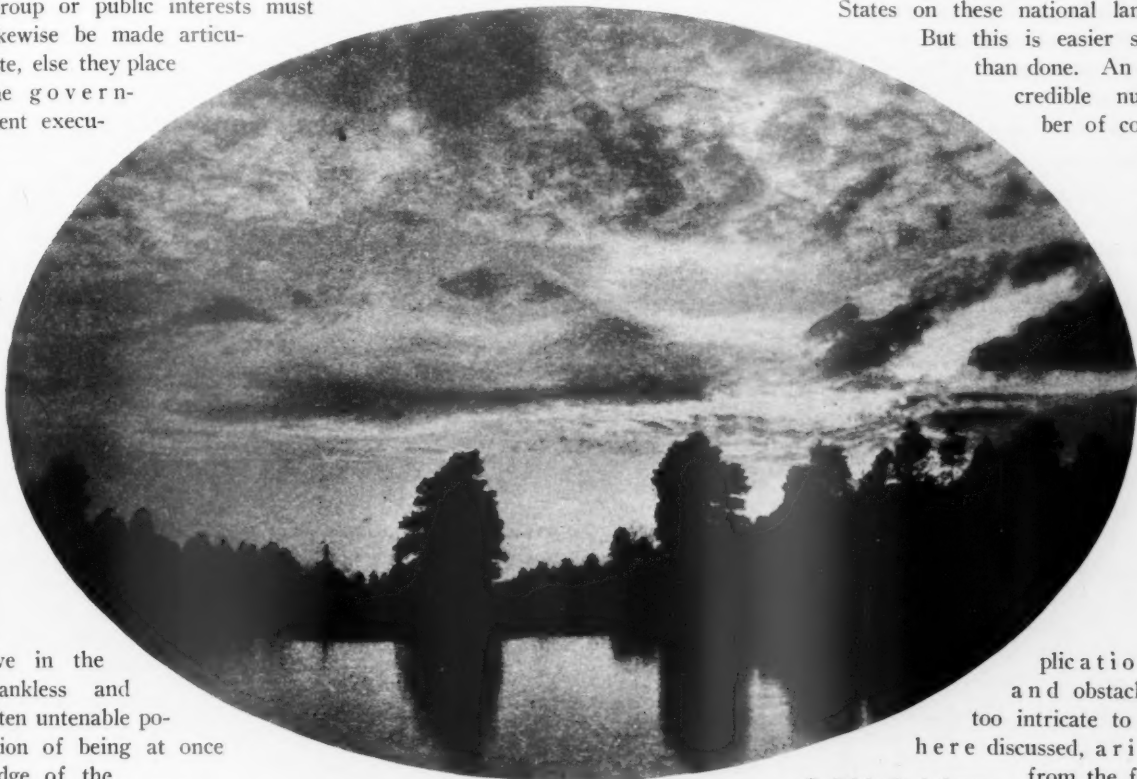
for public recreation as a wilderness hunting ground." The lumber operator answers: "I haven't heard of the public wanting wilderness hunting grounds. Where is this public, and just what does it want?" Obviously, unless there existed some clear expression of public need, and a definite official policy for meeting it, the District Forester's position would be untenable, no matter how certain he felt that it was right. The point is that governmental policies can not be actually applied without many decisions by administrative officers involving the adjustment of conflicting interests. In such conflicts individual or economic interests may always be counted upon to be articulate.

Group or public interests must likewise be made articulate, else they place the government executive

Maine, adds to the vital need for such a project.

But what to do about it is a difficult problem. The national land holdings consist of three little National Forests, The Superior, Minnesota, and Michigan. Their combined area is woefully inadequate. Moreover, they are more or less riddled with private holdings which, until eliminated by land exchanges, constitute serious obstacles to any and all future plans for developing the full public value of these Forests. The Izaak Walton League and the Superior National Forest Recreation Association, with a foresight for which they deserve much credit, have insisted that at least one wilderness area be established in the Lake States on these national lands.

But this is easier said than done. An incredible number of com-



tive in the thankless and often untenable position of being at once judge of the conflict and counsel for an absentee. The public interest

must "speak up or lose out." The dangers of delay in formulating a national policy for the establishment of wilderness recreation grounds are strongly emphasized in the present situation of the Lake States. In the last few years many people have begun to realize that wilderness canoe trips are about to become a thing of the past in the Lake States, because of the extension of tourist roads and summer resorts into the remnants of wild country.

The proximity of the Lake States to the centres of population in the Middle West, and the fact that canoe-travel is a distinctive type of wilderness life not to be found elsewhere south of the Canadian border except in

plications and obstacles, too intricate to be here discussed, arise from the fact that the wilderness idea was born after, rather

THE PEERLESS BEAUTY OF THE WILD

Who can measure its influence in shaping human happiness? Or who would hold against such value the few paltry dollars possible of extraction through so-called development.

© Ralph H. Anderson

than before, the normal course of commercial development had begun. The existence of these complications is nobody's fault. But it will be everybody's fault if they do not serve as a warning against delaying the immediate inauguration of a comprehensive system of wilderness areas in the West, where there is still a relatively unimpeded field for action.

A start toward such a system has already been made at the initiative of the Forest Service. The hinterland around Jackson Hole, including the Grand Tetons and Two-Ocean Pass, are entered as "roadless" in the recreational plans for the future. Likewise, that part of the Absaroka Forest between Boulder Creek and

Yellowstone Park, the Middle Fork of the Salmon River in central Idaho, and parts of the Clearwater country in Montana are so classified. The Gila area in New Mexico has been already mentioned. What now seems to me important is for the government to undertake and the public to support the establishment of similar areas in every state that still contains National Forest or Park lands suitable for wilderness purposes.

The big thing that stands in the way of such a program is the well-nigh universal assumption that advance action is unnecessary. "Why, this area never will be opened up!" That was said ten years ago about many an area that has since been broken up. I know of five in the Southwest alone. It is being said today, and unless we clearly realize the danger, it will continue to be said until the chances for adequate action are gone.

Let us now consider some of the practical details of how the proposed system of wilderness areas should be administered. It is, for instance, a moot question whether regulated timber cutting should be allowed in them. If the conditions are such that the cuttings would leave motor roads in their wake, I would say "no." But in the Lake States much logging can be done over the lakes, without any trunk roads, so that it seems to me possible, by skillful planning, permanently to use much of the remaining wild country for both wilderness recreation and timber production without large sacrifice of either use.

Another question is that of fire. Obviously the construction of trails, phone lines, and towers necessary for fire control must be not only allowed but encouraged. But how about roads? Wherever the opponents of the idea can argue that unless the country is opened up it will burn up, there is no chance for the wilderness. Let us take the Gila as an example. I think it can be confidently asserted that on the Gila, extension of roads is not necessary for good fire protection. The Forest Service, with its system of lookouts, telephone lines, and trails, is successfully handling the fires, even during the bad years. The percentage of lightning as compared with man-caused fires on the Gila is very high (65 per cent lightning; 35 per cent man-caused). As a rule the greater the percentage of lightning fires, the more serious is the handicap of inaccessibility. The reason for this is that man-caused fires are usually increased by building roads and letting in more transients, whereas lightning fires remain the same. Therefore a heavy lightning region like the Gila ought to be a severe test of the practicability of controlling fires in roadless areas. As already stated, that test has been thus far successful.

I do not imply, however, that this one case disposes of the argument. The game of fire-control is too complicated to be comprehended in "rules of thumb." There may be regions here and there where fire control is impossible without roads. If so, we must have roads in such regions, wilderness or no wilderness. But there

may with equal likelihood be other regions where the reverse is true. The whole fire question in its relation to the wilderness plan is one of skill in selecting and administering each particular area. Such skill is already available among the forest officers who have devoted years of study to fire control as well as a dozen other related forest problems.

The acceptance of the idea of wilderness areas entails, I admit, a growth in the original conception of National Forests. The original purposes were timber production and watershed protection, and these are and must always remain the primary purposes. But the whole subsequent history of these Forests has been a history of the appearance and growth of new uses, which, when skillfully adjusted to the primary uses and to each other, were one by one provided for and the net public benefit correspondingly increased. Public recreation was one of these. When the forests were first established, recreation did not exist in the minds of either the foresters or the public as an important use of the public Forests. Today it has been added to timber production and watershed protection as an important additional public service. It has been proven that skillful administration can provide for both in the same system of Forests without material sacrifice of either.

One wilderness area could, I firmly believe, be fitted into the National Forests of each State without material sacrifice of other kinds of playgrounds or other kinds of uses. Additional wilderness areas could, it seems to me, be fitted into the various National Parks. As far as I can see there would usually be necessary neither new costs nor new laws nor new work—simply a well-pondered administrative decision delimiting the areas, and in such area establishing a permanent "closed season" on roads, cottages, or other developments inimical to the wilderness use.

To urge that wilderness playgrounds are unnecessary because ample forest playgrounds of other kinds are already being established is just as idle as to urge that there is no need for public tennis courts because there are already public golf links. The two things represent differing needs of different people, each entitled to recognition in due proportion to their numbers and importance. The people in need of wilderness areas are numerous, and the preservation of their particular kind of contact with Mother Earth is a national problem of the first magnitude.

Now what do the lovers of wilderness trips have to say about it? The last National Conference on Outdoor Recreation said nothing. This Conference is the official agency for extending recognition to new needs of this kind, dovetailing them with other and possibly conflicting needs, and thus determining for each its place in the sun. If any individual or group believe in the wilderness idea, or have any one place where they believe it should be applied, now is the time to make known their belief.



THE BARROW WOMEN ARE SKILLED IN COVERING THE CANOES WITH SKINS

North of the Arctic Circle

By ALFRED M. BAILEY

PART II

ESKIMOS are not saving of their game supply and often kill far more than they can care for, many times merely taking the ivory tusks. On the other hand, the Eskimos are thoroughly honest and law-abiding, and if such a practice were forbidden by law, I believe the majority would be more careful. During the



Fred Hopson

WHEN THE BOWHEAD WHALE MAKES HIS APPEARANCE, THE "HARVEST TIME" OF THE ESKIMOS IS AT HAND

The great hunting oomiak is drawn up on the ice and its crew of eight or nine men stand at their places, ready to launch it instantly when the signal is given. Great excitement prevails, though not a word is spoken.

year we were in the North, the season on fox trapping was shortened by a month. All the natives took in their traps on the day set, although there was no warden within six hundred miles, and one eskimo made a three-day dog sled trip to tell his father of the change in the law! Hendee and I accompanied the natives on their offshore excursions and secured our quota of specimens, taking groups of walrus, and spotted, ringed and bearded seals.

The natives use the skins of walrus and bearded seals in making their great hunting oomiaks. The walrus skins are so bulky it is necessary to split them. Natives of Bering Strait are adepts at this work, but those farther north are not so skillful, and usually use the lighter seal skins. These skin boats are light and very strong, being the only type of canoe suitable for work in shifting ice. Many times we were squeezed by large cakes, but the skins merely gave, and we drew the boats safely upon the ice.

Then came the cold north winds, the "nigik" of the eskimo. "Young ice" formed far out toward the horizon, the walrus herds drifted southward, the white whales disappeared, and the bird migrants had long since made their trek to a warmer clime. I had rather dreaded the disappearance of the sun, because of the monotony of the long winter days, but I found that winter is vaca-



(Bloomfield)

BROWSING REINDEER

These animals are a very important factor in the economic life of the Alaskan Eskimos.

tion time among the eskimos. True, the men folk had their trap lines to attend, for they depend upon their take of arctic fox to furnish them with white man's luxuries, but there were more people in the village, there were more dances and celebrations during the dark days than all the other months of the year put together.

The eskimos were a jovial, sociable lot and thoroughly enjoyed assembling in the school house once or twice a week for an all night dance, and when half a dozen natives put on a performance with the assembled villagers chanting in time with the drum-

mers,—there was no doubt they were having the time of their lives. There is a wild, barbaric rhythm to their music, as they sing and beat their small skin drums, that makes the blood of the most civilized individual run warm. A wedding in the village is always an occasion for a celebration. A missionary often makes a circuit of the coast by dog sled, to marry the couple deluded in the idea they could not live without each other.

One young couple made the sled trip from Icy Cape to Wainwright to be married and had a novel experience to start on their life's journey together. They were in the little snow-drifted igloo of the parents of the bride-to-be, in the early morning, as they were preparing for the sixty-mile sled trip. Suddenly there was a great



A NATIVE TRAPPER, EQUIPPED FOR THE HUNT. IN WINTER THE ESKIMOS DRESS ENTIRELY IN FUR, WEARING A LIGHT, SHIRT-LIKE GARMENT MADE FROM THE SUMMER SKINS OF REINDEER, WITH THE HAIR NEXT TO THE BODY, WHILE OVER THIS IS PULLED AN ARTIGA WITH THE FUR WORN ON THE OUTSIDE. WITH FUR PANTS, HEAVY BOOTS, SOCKS AND MITTENS COMPLETE HIS OUTFIT AND HE IS READY TO MEET THE COLDEST WEATHER IN ENTIRE COMFORT.

commotion among the dogs tied outside,—and being wise to the ways of the North, the girl took her rifle when going out to investigate. There at the cache stood a great "Silver King," a polar bear, and one well-aimed shot made old "Nannuk" into a fine museum specimen.

No chance for a celebration is lost, and when New Year's Day finally drifted around, Allen and I arranged dog and reindeer races with appropriate prizes hung up for each event. The day was very cold, and as the sun was still below the horizon, we held the races about noon. We started several reindeer teams off at once on a five-mile "trot," and at the crack of the pistol, the seven teams jumped in as many different directions, each team radiating from the common center like spokes from a wheel! Only one team was persuaded to finish by the time darkness set in! While waiting for the deer to show up, we started the big race of the

give their sleds a push at the signal,—the pistol was fired, and the race was on. The dogs headed for one point, but in scarcely more than two more seconds they all mixed in the grandest dog fight I have ever seen, with eleven swearing eskimos plying whips, and



THE FROZEN ARCTIC—HUNTERS NEGOTIATING THE ROUGH SEA ICE



THE ARCTIC FREE OF ICE—THE STORY OF BEAUTY WRITTEN IN THE MOONLIGHT NIGHTS AND THE MARVELLOUS LIGHT EFFECTS SEEN IN THESE NORTHERN SKIES, IS ONE NOT OFTEN TOLD

day, a five-mile event for teams of nine dogs each. Eleven sleds were entered—ninety-nine dogs, and instead of starting them out at intervals of one minute as is usually the case, we lined them up, all to start at once. Eleven anxious eskimos, whip in hand, stood ready to

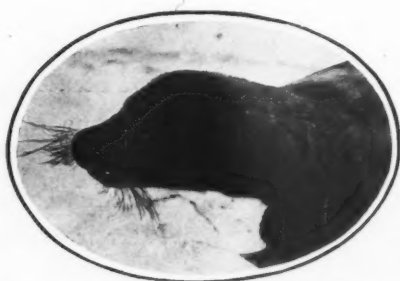
then the uneven tundra is packed hard with drifted snow, the lagoons and meandering rivers are frozen, and often the sea ice is smooth enough for making good progress. The days are short, but the gray light of mid-day is sufficient, although the absence of shadows makes the whole

ninety-nine dogs, sleds and harnesses in a hopeless tangle. It was a great race!

Weather conditions along the arctic coast are not as severe as one would imagine. I heard an old sourdough at Nome describe Alaskan weather by saying, "Stranger, we have eleven months winter, and one month dog-goned late in the fall," but we found this an exaggeration. The winters are ideal for travelling, and we made the two hundred mile round trip journey to Barrow with the dogs during the dark days; and after the sun returned, I made a continuous trip to Cape Prince of Wales, a journey of six hundred and fifty miles. Overland travel is almost impossible except during the winter months;



The author discovers a nest of young whistling swans. Many species of birds rear families when the spring rains come and the snow disappears from the tundra.



Oogrook—the Great Bearded Seal



Above — The Proud Father of a Happy Alaska Eskimo Baby.



Above—The natives stage a celebration, their "Nele-kutuk" or dance of the air, to mark a successful season. The group in front is preparing "Muk-tuk"—the skin of the whale cut in strips and eaten raw, as a delectable morsel at the feast following the dance.

Photographs by Harry C. Bloomfield.

Center—Old Nannuk, the Polar Bear, converted by one well directed shot into a fine museum specimen.

A "close-up" of the enthusiastic Eskimo dancer.





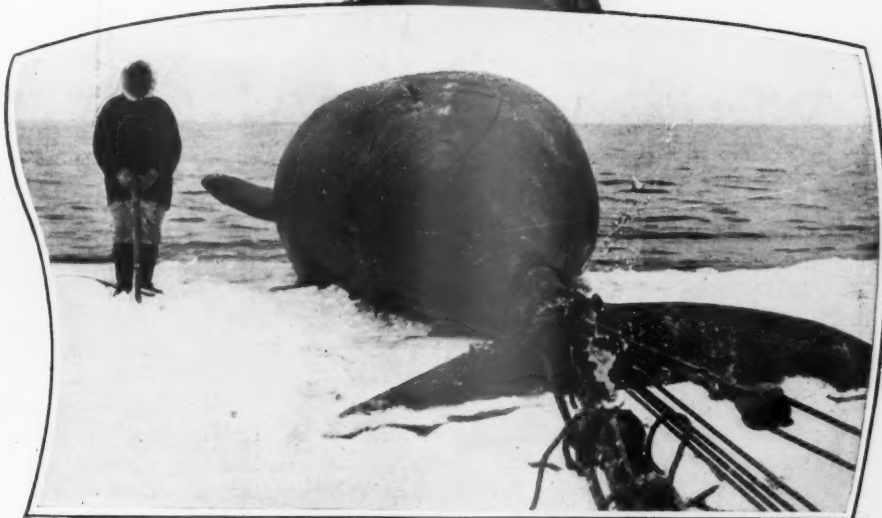
Lovely Arctic wild-flowers, which bloom in profusion in the springtime, will beautify her wedding.



The little bride-to-be, waiting in the entrance of her snow-drifted igloo.



Thrilling times prevail while the hunting season for the Bowhead Whale is on, for great skill is required and not a little bravery. It is a tremendous task to care for the kill, but not an ounce of flesh is wasted



Photograph by Fred Hopson.

A Great Capture

country look flat. Time and again I have had the dogs drop down a coulee ahead of me so suddenly it was impossible to keep the sled from following.

It is during the light, moonlight nights of midwinter, however, that the traveller really enjoys mushing along the coast. The nights are snapping cold, and one can hear the creaking of the sleds or the muffled howl of the malamute for a long distance; the aurora flares overhead, sometimes as a "milky way" extending across the northern sky, with ribbons of light dropping curtain-like toward the horizon, and again as scrolls working their way high in the heavens—a wierd, uncanny display that always makes one feel the greatness and solitude of the wide, snow-packed arctic.

Then, as one has been stumbling after the sled for hours, perhaps holding to the handle bars for support, how kindly seems the warm glow of a native igloo, reflected into the deep blackness from the single gut window! How pleasing the smell of the native village, the chorus of the eskimo dogs in song, and the welcoming call of the people as they pour from their little drift igloos to aid you in caring for your team. And how kindly and simply they offer you hospitality. The kettle is immediately put on for tea and the women dry your fur boots and socks. They have not many conveniences, but the stranger is welcome to the best they have. Who can ask for more? When I hear the expression, "southern hospitality," my mind does not carry a picture of white colonial mansions south of the Mason-Dixon line, but rather, I have a vision of humble homes just south of latitude 72 North, where the eskimos and whites always bid you welcome.

When the sun returns in the spring, even though the days are actually colder than during the dark days of winter, it seems that summer is on its way. The natives begin to overhaul their whaling gear, they make harpoon points and paddles, and cut long lines from seal skins. Much of this is communistic labor, the women assembling to sew skins on the oomiak frames and the men working together in preparing their whaling outfit. The Eskimos of our coast are not communistic, however, except they hunt together when after game too large for one man to handle. The skilled and persevering hunter is the wealthy one, and as with us, the shiftless individual must care for himself.

Early in May, when the leads open, there is great excitement in the village, for "*ahkalook*," the bowhead whale will soon make his appearance, diving from one open hole to another in the seemingly solid frozen arctic. The "harvest time" of the eskimo has come, and upon the events of the next few weeks rests the decision whether the natives will have a lean year or one of plenty.

A trail is cut five or six miles through the rough ice to the "flaw" (where the grounded shore ice breaks away from the sea ice) and there camp is pitched and the natives eagerly await the first sign of life arriving from the south. In a day or so, possibly, some bronzed, furred native will point to the south exclaiming "*nau-ya*."

It is the glaucous gull, the first arrival of the spring time. Then in the open leads appear glistening schools of beluga, the white whale, the "*shishara*" of the natives, and soon "*ahkalook*" is sure to appear.

"Not a word is spoken when hunting the bowhead whale. The oomiak is drawn up on the ice and the crew of eight or nine men stand at their places ready to launch the canoe, while the "boatsteerer" is in the bow with darting gun in hand. This is a harpoon with long line attached to sealskin floats, and fires an eight-gauge bomb upon contact with the heavy skinned whale. Often the "*ahkalook*" rises directly in front of the canoe—and the natives give one shove and literally throw the boat upon the whale, the boatsteerer strikes the harpoon home, and immediately picks up the "second gun" and fires another bomb. Many times the whale is killed at once, but more often a long chase results in which the natives run alongside the wounded animal and fire more bombs. When the whales are sighted in the distance as they lie upon the water, the natives cautiously paddle near until the harpooner can strike his victim. The harpoon is so heavy it is not thrown, but is *shoved* into the whale. Such hunting requires skill and not a little bravery. In the old days, the eskimos killed their game entirely with primitive instruments of bone, ivory and stone. After striking with the harpoon, they attempted to "hamstring" the whale by cutting the great tendon of the "small" just ahead of the massive flukes, and so keep the monster from diving. The average eskimo leads an exciting life.

And what excitement prevails after a whale is killed! A flag is raised from the camp of the victorious crew, and no matter what time of the day or night (for some one is always watching from an igloo top with a telescope) a line of dog teams will soon appear from the village, and all hands are ready to save the meat. With such huge animals, it is of course a tremendous task to care for the kill, but not an ounce of flesh is wasted. If the whale is small, say thirty-five feet or under in length, he is drawn bodily upon the ice, and so easily disposed of, but if it is a large specimen, it is necessary to cut it up under the water. The "whale bone," formerly of such commercial value, is divided among the crew, while the meat is given to all the villagers.

After a successful season, the natives stage a celebration, their "*neleikutuk*," or dance of the air. The whaling canoes are drawn upon the tundra, with flags of the successful hunters flying, it being a great honor to have this flag at the masthead. *Muk-tuk*, the skin of the whale is cut in strips and eaten raw, and many native delicacies are prepared for the feast which follows. A continuous dance goes on, with the victorious hunters performing, oftentimes portraying their skill at the chase, while the assembled throng clap in unison and chant with the pounding of drums. Others of the eskimos have a large walrus skin upon which they are tossing, not a tumbling victim, but a dancing native who is thrown upright, sometimes thirty feet in the air, gracefully keeping his erect pose. Of course when a dancer loses his

(Continued on page 620)



EDITORIAL

The Investigation of Uncle Sam's Ranges

IT is to be hoped that the Public Lands Committee of the United States Senate, which is now holding hearings in the West, will make a thorough case of its investigation of grazing on the National Forests and the unappropriated public domain. There is need for a penetrating inquiry into grazing conditions on publicly owned lands in the West, provided the investigation has broad public interests as its paramount objective. The manner in which these lands are grazed by cattle and sheep reaches farther than most people suspect. As an issue, the price which Uncle Sam places upon his forage is of minor importance. The real issue from the broad public standpoint is the effect of the grazing upon present and future supplies of forests and waters.

The very life of the West is dependent upon the water which flows down from the mountains on which millions of sheep and cattle are now being grazed. The permanence of its water supply, therefore, is directly affected by the conditions of forest and plant growth on the mountain slopes. For every stockman now fighting to graze his stock on the public range, there are several thousand American citizens directly concerned in the way in which the ranges are used. Their lives, their property and their prosperity are at stake. This is particularly true of the lands within the National Forests which were created for the primary purpose of conserving forests and waters that the West might grow and prosper and contribute its wonderful resources to the up-building of the nation.

To what extent is grazing, as now conducted on the National Forests and the public domain, affecting the present and future supply of water for the West? To what extent is it affecting forest conditions which are the secret to abundant and permanent water supply? This is the big issue that must be read into the present grazing controversy, and it is the situation into which the Senate Investigating Committee must delve to the bottom before it can make recommendations to Congress that will have public confidence and public support.

The livestock industry is but one of many great western industries dependent upon the proper use of our public lands. Farming, fruit growing, lumbering, water power and city building, each have an interest no less

vital to themselves, to the West as a whole, and to the nation. It is to be regretted that the published reports of the hearings which the Public Lands Committee held in Washington and Arizona do not reflect an interest on the part of the Committee in getting at this crux of the grazing situation. A review of these reports fails to reveal any sincere attempt by the Committee to bring out the facts concerning the effect of grazing on forest regeneration or water supply. The whole effort of the Committee seems to have been to elicit from its witnesses by leading questions superficial criticism of public officials who are endeavoring to carry out the grazing policies of the Government. The testimony of disgruntled stockmen fills page after page of the report. If the hearings now being conducted in other western states continue to evade the great public question involved in this grazing situation, the committee's work will have been a waste of public funds.

There is a great amount of misinformation abroad in respect to grazing on the National Forests and the public domain, which must be cleared up by the committee. The stockmen themselves have contributed to this misinformation. For example, a special edition of the Weekly Bulletin of the Idaho Wool Growers' Association, issued last April, contains the following astounding statement:

"Forester Greeley and some of his assistants, who have never lived on the western ranges and know little of the methods of handling stock here or the actual facts regarding their habits, try to claim that sheep and cattle injure the young pine seedlings. On this account, the number of stock to be grazed on the National Forests of Arizona recently has been reduced 29 per cent. Cattle and sheep do not injure pine seedlings except in the very rarest instances. Occasionally a cow steps on a young seedling, but this rarely ever kills it. Contrary to what the Forester and his assistants seem to care to believe, sheep and cattle never eat any brush or trees of the pine family. The turpentine in the pine sap is not palatable to them."

Upon what showing of facts the stockmen feel justified in telling the public that sheep and cattle do not injure brush or trees of the pine family, we do not know. So far as information goes, the livestock industry has

never made an exhaustive independent study of the effect of grazing upon tree growth or water conservation. On the other hand, the Forest Service has for more than fifteen years had specially trained men studying these subjects in various parts of the West, and it has abundant data to show that overgrazing is a serious menace both to forest regeneration and water conservation. Working from their experiment stations in California, the Pacific Northwest, the Southwest, and the Rocky Mountains, their foresters and grazing specialists have established beyond all question of doubt that grazing is injurious to tree growth wherever wrong systems of grazing management are practiced, no matter where the range is located. Their records not only refute the stockmen's claim that the cows step aside for the young pine seedlings, but they show conclusively that under conditions not at all uncommon the animals stunt and kill the little trees by browsing. In the statement quoted, the stockmen's irresponsibility for truthful statements may also be found in the opening sentence. As a matter of fact the Chief Forester W. B. Greeley was educated in the West,

and lived most of his life in the West until he was appointed Chief Forester a few years ago.

We believe that the time has come to penetrate the smoke screen which the stockmen are throwing up against the fair valuation and right management of grazing on Uncle Sam's pastures, and to go to the very bottom of grazing conditions. The grazing industry in the West, so far as it is dependent upon public lands for forage, must be put once for all in its proper place in relation to the interests of other industries and other citizens in these key lands to general prosperity. That the unreserved public domain is badly overgrazed is generally conceded. That portions of many of the National Forests are likewise overgrazed will be readily admitted by many. The recommendations of the Senate Investigating Committee for the proper administration of grazing on these lands must be based upon a grazing management which protects and holds supreme their primary value as reservoirs of forests and waters. Anything short of this will be short of statesmanship and of real public service.

Retimbering "Old Ironsides"

THE story published on page 583 of this issue, describing the wood from which our forefathers fashioned our most famous warship "Old Ironsides" is an interesting and timely contribution to the restoration of this historic frigate. The U. S. S. *Constitution* is probably the best example of the wooden ship of old now afloat. That she has endured for more than a century and a quarter is high testimony of the care with which our early naval men selected her timbers and put them into place. In restoring her to the image of 1797, it is proposed to replace her parts, sail for sail, and timber for timber.

As Commander Duncan points out, the task of replacing her more massive timbers will undoubtedly be the most difficult to execute. Built during a time when the navy had at its disposal unlimited forests of virgin timber from which to select their wooden beams and frames, she is to be rebuilt at a time when those forests are all but gone. To match the pine and liveoak part for part may, it is feared, actually delay the rebuilding of the ship.

While the actual dimensions and species of many of the old timbers will not be known until work of restora-

tion begins, it would seem the part of both wisdom and patriotism for proper agencies to locate in advance sources from which the timber required might be obtained. Here, we believe, is an opportunity for the lumber industry to render a great patriotic service. By ascertaining at once from those who will have charge of the restoration the approximate requirements, the lumber industry, through the facilities offered by its regional associations, could search out, locate, and if need be option sufficient standing timber of the size and species required. This may be a long task and certainly it is one which ought to be taken up well in advance to preclude expensive delays in the rebuilding.

The restoration of "Old Ironsides" is first and last a purely patriotic cause, and the great lumber industry of America will no doubt be proud to contribute its services in a national and appropriate way. Information regarding plans for rebuilding the *Constitution* may be obtained by writing Rear-Admiral L. R. DeSteiguer, U. S. N., Navy Yard, Boston, Massachusetts. The old records of the Navy Department and all helpful data in its files will be available to those interested in making sure that the proper timber be obtained for the work.

ELECTION OF NEW OFFICERS

SUGGESTIONS for the nominations of officers of The American Forestry Association to be elected in January next should be sent to the Committee on Elections, The American Forestry Association, 1523 L Street, Washington, D. C., not later than November 1. The Committee on Elections consists of William P. Wharton, chairman, Groton, Massachusetts; Barrington Moore, 925 Park Avenue, New York, and William L. Hall, 522 Spring Street, Hot Springs, Arkansas. At the forthcoming election new officers will be elected to fill the positions of president, twenty-one vice-presidents, treasurer, and five directors, three to serve for terms of five years, one for a term of two years, and one for a term of one year.

Under the by-laws members of the Association are privileged to nominate candidates, provided said nominations are signed by not less than twenty-five members of the Association, and are in the hands of the Committee on Elections prior to November 1. Nominations made by the Committee on Elections, together with any nominations made by the members, will be published in the December issue of this magazine.

The Wood in "Old Ironsides"

(Continued from page 587)

only half an inch larger than Colo. Cleghorn wishes; the others in the same proportion."

As an interesting sidelight on the prices of some of the oak timber supplied for the *Constitution*—the following letter to Tench Coxe, Esq., from the War Department, dated July 5, 1794, is quoted:

"I have the honor to transmit for your information the extract of a letter from Mr. Charles Vaughan of Boston, by which you will perceive the price of Oak plank at that place. I am Sir,

* * * * *

EXTRACT OF MR. VAUGHAN'S LETTER

"Boston 22 June 1794

"Plank in demand here is from 40 to 60 feet in length, and 2½ inches thick, price 35 dollars—3 inch, of same length, 40 dols. The plank I engage to deliver shall average 56 feet and *none shall be under 50 feet*, and a proportion shall be 70 feet long, the thickness of 2½ inches should be 45 dollars and 3 inch 50 dollars. I have heard also from Kennebeck & I have 2000 tons of timber ½ of which is proper for this purpose, but say 150. If time will permit I can furnish, Cost to me as follows, without allowance for waste in timber refuse plank or the like—

For 2½ inch—1m	5 tons timber at 16/ its value now	
	at 15.....	4 0 0
	Sawing ditto.....	3 0 0
	Freight at least 1.4 of Boston	
	price	2 12 6
		9 12 6
For 3 inch—1m	6 tons	4 16 0
	Sawing ditto.....	3 — 0
	Freight	3 0 0
		10 16 0

I do not think the additional sum I have suggested will more than cover the risk of such contract."

In the fall of 1795, the War Department wrote that "it has been determined on to supply the Yards to the Northward first with live oak Timber," and that Mr. Morgan was "absent on that Business in Georgia, where he will probably remain until a supply for all frigates is procured." But the supply was not forthcoming as expected for on May 17, 1796, the Secretary wrote, in part, to Captain Samuel Nicholson, who had been selected to command the *Constitution*, as follows:

"It afforded me pleasure to learn that a Vessel had arrived at Portsmouth laden with live oak, which I hope is at Boston by this time—This Cargo will no doubt be a great acquisition and be a means of getting the Hull of the Frigate in great forwardness: (if not complete) this year."

The *Constitution* was not, however, ready for launching until October, 1797, more than a year later. No doubt many things other than the procurement of her

timbers contributed to the delays of her building. Execution in all things seems to have been the rule and in the absence of scientific data, opinions no doubt varied widely and warmly. From the following extract of a letter written by the War Secretary on January 25, 1796, one may easily imagine that it was a compromising settlement of a long and tenacious controversy:

"The Masting the Frigates now building have been submitted to several Gentlemen of considerable abilities and reputed skill in Naval Affairs for their opinions as to the best proportions for Masting the two Classes of Ships so as to answer all the purposes necessary for Ships of War—but a diversity of opinions having arisen on the length of particular Masts and Yards, I am induced to propose, that the Captain, and Constructor, of each Frigate, shall have liberty to Mast and Spar their own Ship according to the best of their judgments."

This latitude is unheard of today.

Protecting the ship timbers against decay was not overlooked as evidenced by a letter written May 14, 1795, by the War Office to Captain James Sever which reads:

"I have received your letter of the 26th. Your direction for putting the white oak timber when dressed, into salt water, is doubtless a very good one. By this post will be transmitted to Mr. Hacket, copies of two letters from Mr. Humphreys, the constructor of the frigate building at Philadelphia. In one of them he suggests that it would be expedient to bore the ends of the beams, and for a certain part to run a whip saw through the center, and then to fill the auger holes, and the opening, with salt, in order to prevent the rotting of the timber. Should Mr. Hacket approve the project of boring, and sawing, the putting them into salt-water will more effectually preserve them, I conceive, than Mr. Humphrey's application of salt. The part sawed, may be opened, as Mr. Humphreys proposed; and if the time they shall lay in the salt water shall raise doubt whether they are sufficiently penetrated, the dry salt may be afterwards applied."

Wood preservers of today will smile at the crude and laborious methods which these old shipbuilders employed in treating their timbers but what they lacked in scientific wood knowledge they more than made up in the meticulous care with which they selected, fashioned and placed every wooden part. It is of interest to note that seamen of today maintain that salting preserves wood better than any modern practices and this is borne out by the remarkable state of preservation of the *Constellation* and *Constitution*.

To what extent the timbers of "Old Ironsides" will have to be replaced in whole or in part is not yet determined but it is known that the task of wood replacement will be large. Although reconditioned on three previous occasions—the first in 1833, again in 1871 and a third time in 1906, it is estimated that nearly half a million dollars will be necessary to rebuild her as she was orig-

(Continued on page 620)



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FAMOUS OLD LOGGING CAMP BALLADS

THROUGH the superficial bravado of the Shanty-boy's contempt for the Farmer's Son, as sung in this inimitable ballad, gleams the bitter truth of his knowledge that his rival, "the mossback" is, after all, the better off. And there is a certain pathos in his gallant attempt to gloss over this fact with a veneer of rough fun—the crude effort of a simple type to hide his tragedy.

By FRANZ RICKABY

V. *The Shanty-boy and the Farmer's Son*

THIS old favorite of the pine woods, in the form of a debate between two earnest young ladies over the merits of their respective lovers, finally won by what the shanty-boy would probably call the affirmative side of the question, owed its popularity to the fundamental fact of a class distinction, a distinction which still exists in some quarters of our fair land—that between the sophisticated person of the city and world at large, and his more ingenuous brother who tills the soil.

Although the farms came to furnish the logging camps many an efficient woodsman in the winter seasons, it could hardly be otherwise than that the dyed-in-the-wool shanty-boy, the courageous, daring, pent-up animal who, after the spring drive, roared into the cities and towns for his riotous and spendthrift holiday, should hold at some degree of contempt the quieter, more provident farmer fellow with his less hazardous occupation and his deterrent tendency to pocket his stake and retire to his friendly acres, or his father's. Those who preyed on the shanty-boy's strength and weakness, who quenched his thirst and satisfied his various hungers, fed fat that vanity of his by which he believed himself possessed of an emboldening worldly-wisdom. The shanty-boy's contempt for the farmer's son, who tended to show diffidence in the places of broad paths and glittering doors, was surpassed only by the contempt affected toward him by those whose insidious blandishments failed to conjure forth his money.

But the shanty-boy's contempt for the farmer's son, for all his boasting and superficial bravado, and for all his singing about it, was more apparent than real; for in his innermost being the shanty-boy, unattached and utterly without home except the camps, knew that although

his experience was the larger and more picturesque, it was the more costly. He knew, as all knew, that the "mossback," with all his diffidence and handicapping greenness, was the better off. There were in all likelihood very few shanty-boys who did not form and nourish annually the sincere intention of acquiring farms and families of their own. This hypothesis finds support in the final stanza of many a shanty song and ballad, wherein the singer proposes to give over his roving and improvident life and settle down. In the great majority of cases the intention bore no fruit, and it was thus over a substance of tragedy that the shanty-boy laid his veneer of fun and had his flings at the "mossback."

The rivalry, barring the action of liquor, was not deep or vital, and did not reach the fatal intensity of that between the cowboy and the sheep-herder, or the ranchman and the fence-farmer, in our western country; for in the latter cases the dominant motif was that of self-preservation—always potentially terrible. No such rivalry could exist between the shanty-boy and the farmer, for where the one plied his trade the other, by the very nature of things, could not.

The shanty-boy was not the first to sing of his own bold self as being the woman's choice as against some other fellow. The sailor did it before him, in an old-world song known as "I Love My Sailor Boy." In this song, which is evidently the pattern for "The Shanty-boy and the Farmer's Son," a daughter successfully withstands her mother's commonsense advice to let her tarry sailor go his nefarious ways and attach herself instead to some steady-going and provident farmer's son. But the girl finally exclaims,

"A fig for all your farmer's sons! Such lovers I disdain," and declares herself once and for all faithful to

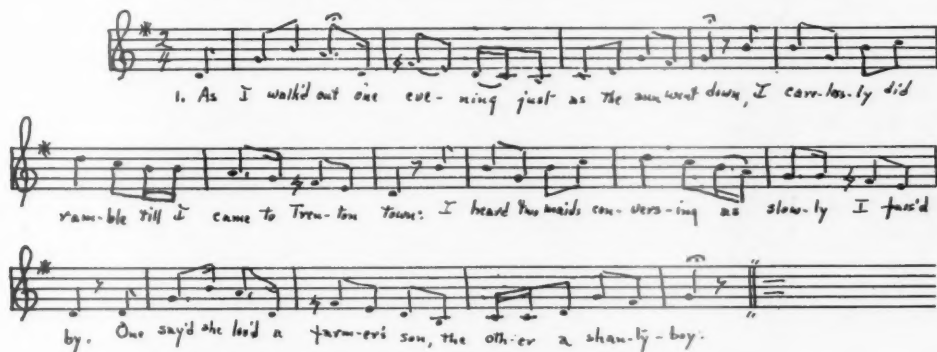
the lad who dares to face the raging main where the stormy winds do blow.

The Trenton town mentioned in the second line of stanza 1 as being the scene of this famous debate, would seem to mean little in a historical way. In another version of the ballad it is "Stroner town," which the singer, M. C. Dean, of Virginia, Minnesota, described for me as being at the head of Manistee Lake, six miles up from Manistee, Michigan. I have not verified this. The singer of another version walked along leisurely till he came near "a twinkling town," which no degree of investigation will locate. And still another version mentions no town at all. The singer in "I Love My Sailor Boy" wandered down "Liverpool's street so gay." So much for the geography of the piece.

The ballad as I print it here was sung for me by Mr. Ed Springstad, of Bemidji, Minnesota, known, throughout the Bemidji country at least, as "Arkansaw." Springstad was an old woodsman of large experience in the white pine woods, and was, by his very own account, the best foreman who ever got out a log; and by the same account he was the best log-birler since Paul Bunyan. He described to me in great detail the purpose of this ballad—that of riling the farmer boys—and assured me that in this use it was always eminently successful. I always use this song on my programs, and the line which seems to cause my listeners the most joy is this one:

"You have no need to be in debt when you're on a good farm."

The Shanty-boy and the Farmer's Son



- 1 As I walked out one evening just as the sun went down,
I carelessly did ramble till I came to Trenton town.
I heard two maids conversing as slowly I passed by;
One say'd she loved a farmer's son, the other a shanty-boy.
- 2 The one that loved her farmer's son, those words I heard her say:
"The reason that I love him, at home with me he'll stay.
He'll stay at home all winter; to the shanties he will not go,
And when the spring it doth come in, his land he'll plow and sow."
- 3 "All for to plow and sow your land," the other girl did say,
"If crops should prove a failure, your debts you could not pay,
If crops should prove a failure and the grain market be low,
The sheriff he would sell you out to pay the debts you owe."
- 4 "All for the sheriff selling us out, it doth not me alarm.
You have no need to be in debt when you're on a good farm.
You raise your bread all on your farm; you don't work through storms of rain,
While your shanty-boy he must work each day his family to maintain.
- 5 "Oh, how you praise your shanty-boy who off to the woods must go!
He's ordered out before daylight to work through storms and snow,
Whilst happy and contented my farmer's son doth lie
And he tells to me sweet tales of love until the storm goes by."
- 6 "That's the reason I praise my shanty-boy. He goes up early in the fall.
He is both stout and hardy and he's fit to stand the squall.
It's with pleasure I'll receive him in the spring when he comes down,
And his money quite free he'll share with me when your farmer's sons have none.
- 7 "I could not stand those silly words your farmer's son would say.
They are so green the cows oft-times have taken them for hay.
How easy it is to know them when they come into town!
Small boys they will run up to them sayin', "Ho, mossback, are ye down?"
- 8 "What I say'd about your shanty-boy, I'll hope you'll excuse me,
And of my ignorant farmer's son I hope I do get free.
Then if ever I do get a chance, with a shanty-boy I'll go,
And I'll leave poor mossback stay at home his buckwheat for to sow."

Keep Your Head

And Know What to Do When Lost in the Woods

By E. J. DAILEY

"LOST" is a small word, but the realization of its full meaning sometimes comes with stunning force to the individual. Having been lost myself a number of times, I am writing so that others may possibly benefit from some of my experiences—lessons often bitterly learned.

It is no disgrace to get lost, and I have never known a person who was entirely immune. A few great woodsmen I have known could traverse the forests partly by instinct and partly by signs, and apparently always know their exact location. But it is not the fact that they never do get lost that brings them out of the woods safely. It is the fact that even though they do get lost, they do not make matters hopeless by losing their brains as well as their bodies.

When you go into the woods or mountains, always try to make yourself believe that you are going to be lost during the trip, and outfit accordingly. The average person thinks that a compass is about the only essential needed if one becomes lost. A good compass should always be in possession of every person who is traveling in strange woods, yet if one depends entirely on this instrument he may spend many nights and days of terror, for a compass is easily broken, or minerals in the ground may cause the hand to move backward and forward incessantly.

Equally as important as a compass is food to sustain strength until one can find his way out of the forest. This

food should be carried as emergency rations, should be as highly concentrated as possible, and should be packed in waterproof containers. The writer uses an ordinary cocoa can for the container, and the cover easily can be soldered on. Bar chocolate and cocoa butter are considered about the best-balanced emergency ration. Our forefathers dried every particle of moisture from cornmeal and carried this. One should never consider living on the

wild animals he encounters when lost, for I have been lost in sections where I knew there were meat animals, and yet I could not even get close to a red squirrel. There are certain seasons when no food is available in the Northern forest. Dried fruits are very good to carry as a "lost" ration, and often come in very handy when one is not lost.

For many years I have trapped the elusive fur-bearers of the Adirondacks. When I go out on the trapline, I never know just what time I will return. I may come to the trail of a fisher or a bear, and be off my regular line for days at a time. Then is the time the emergency rations come in handy. Matches and salt are very necessary equipment, to be carried at all times. I know of no match container

which is more waterproof than a tightly corked bottle. This will stand even a ducking into a stream. Salt can be carried in the same manner. Assuming that a lost person does capture some denizen of the wilds whose flesh may be used as food—a porcupine, for instance—the half-



A QUICKLY CONSTRUCTED TYPE OF ADIRONDACK "LEAN-TO"—BUT ONE PROVIDING ADEQUATE SHELTER IN CASE OF EMERGENCY.

cooked flesh will be unappetizing enough with salt, but without it only a starving person will consume it. A belt ax and a good knife with a strong blade must at all times accompany a traveler of the wilds. The ax will be needed to cut fuel and build overnight camps, while the knife will be used for various purposes, like whittling shavings for the fire or repairing snowshoes.

Perhaps you who have never been lost will think some of the articles I have mentioned are unnecessary, and that you would only be loading yourself down with junk. But if the half dozen persons who are lost here in the Adirondacks each year, and are never found, had prepared for what happened, a different story could have been told. Fresh in my mind is the remembrance of a Buffalo, New York, man who came to the vicinity of Owls Head early last fall to hunt grouse. One morning he went into the forest to hunt, as usual. When he failed to arrive at camp that night, a search was made, but no hunter could be found. On the morrow the search was continued, and for many days, but eventually the search was discontinued, and the case goes down in Adirondack history as one more person who became lost and in some manner unknown, perished. There are hundreds of such cases.

The very first thing a person should do the minute he realizes that he is lost is to stop moving immediately. The chances are good that he is closer to some object or some place that he will recognize than he will be by dashing off



COUNTRY WHERE IT IS VERY EASY TO BECOME CONFUSED IN SENSE OF DIRECTION AND WHERE A FEW COMMON-SENSE RULES WILL ENABLE ONE TO AVOID GETTING "LOST."

The hunting season is just ahead. Sportsmen in every state in the Union are planning for their Fall hunting trips. Thousands, yes millions, will go forth into the woods, many into unfamiliar country. And many will be inexperienced in the ways of woodcraft.

Every year, the chase writes its scroll of terrible experiences and takes its toll of human life under the caption "Lost." The best precaution against such a contingency is to know how to keep one's head and just what to do when the terrible realization dawns that "You are lost."

The article printed herewith is the second and concluding one dealing with getting lost in the woods. It is written by an experienced guide in the Adirondack Mountains,—a man who spends practically all his time in the woods. The first article appeared in the last issue and dealt with getting lost in our western mountains. Mr. Dailey carries the subject to our eastern mountains, but gives invaluable advice to those who are contemplating hunting or outing trips into any region.

man to live his allotted number of years who would have otherwise passed to the great beyond when out of food in a wilderness region. Another item that the writer often carries in cold weather is a woolen blanket or, better still,

hurriedly, as nearly everyone does. If the person has a compass and the hand "sets" readily, he should abide entirely by it, and after taking a mental inventory of the surroundings—the sun and the way the streams are running—he should select a route and follow it without changing until he comes to some place that he recognizes. Assuming that the compass refuses to give any definite direction, or that the lost person has none with him, which is usually the case, the method of following a stream, if such can be located, is the surest I know. However, one must realize that in certain sections of a mountain country, known as the divide, water may run in different directions within a very short space. It is advisable always to follow down stream, as this will be more apt to lead one out of a mountain and forest country. If water is apparently still, one can tell which way it is flow-

ing by tossing in a dry stick and then watching it. In very cold weather, a person might have to cut a hole in the ice, if no waterfalls could be located, or the incline were not great enough. After a hole is cut in the ice on a stream, a few fish may sometimes be caught, if a line and hook is carried. A fish-line and hook, with perhaps a bit of pork rind for bait, weighing altogether but a fraction of an ounce, has allowed many a

a pair, and these have turned many an uncomfortable night into a comparatively pleasant one.

It is the night time that "gets" the person who is lost in the woods. As a guide in the Adirondack forest, I have helped bring in persons who had been lost but a few days, and invariably they were raving maniacs, whom it took weeks of care to get back to normal. A lost person should always guard against the sudden approach of night and prepare for it. He is much better off to try and get some rest, and start again at daylight. If the time is fall, when most people get lost, and the country is not too far north, it is a simple matter to spend a night in the woods. Often a shelving rock can be located, and when a fire is built in front of it, and a heat reflector of green wood, earth or rock placed back of the fire, one may nap comfortably through a cold night. Usually there are plenty of leaves to make a bed or covering if there is no blanket. Enough wood should be cut or gathered to last the night through. Birch bark is the most highly inflammable article in the woods, and will burn readily, even though wet or ice-coated. The small boughs of young green cedar or spruce will also burn when wet. Dry material can often be found in snags or hollow logs, even after a heavy rainfall.

If a person should get lost in the winter when the temperature is well below zero, then is the time that woodcraft is necessary. There is, however, one seeming advantage in being lost during a cold period. An abundance of snow is usually on the ground, and it is possible for one to back-track himself to some place where he can get his bearings. Yet I have known my snowshoe trail to drift over before I had gone ten steps. Snow also causes the woods to look unfamiliar, and covers pitfalls lightly that may precipitate one into the hidden depths of a chasm, where he might sustain a broken bone. I have fallen into holes or over bluffs when I was afraid to move, for fear that I was crippled and unable to go on. Caution at such times should be a well-observed rule.

Structures which can be built hastily, and yet will keep out the terrible breath of King Winter, are varied. Different localities usually have their standards. Here in the



A SAFE SHELTER, COSY AND WARM, IS TO BE FOUND UNDER A WINDFALL.

on the ground. The top and sides are covered with evergreen boughs and a fire is built in front and kept burning continuously.

The quickest and easiest built shelter that I know of is made by simply cutting an evergreen which is about fifteen feet high, about halfway up. Then, when it falls over, cut off the inner branches and pile them on the outside. Occasionally a lost person can locate a tree that the snow has caused the branches to sag to the ground. This must be an evergreen, preferably a spruce, on account of the great denseness.

I was running a trapline in the Cold River country one winter, and I went up into the Sawtooths one January day to look at some marten traps. I came to a very fresh track of one of these animals, which I followed. Becoming engrossed at my work, I failed to notice an approaching blizzard. Now, being lost in a blizzard is the worst misfortune that can ever come upon an outdoors man. No compass can help materially at this time, and the person soon perishes, unless unlooked for aid arrives. The first I noticed of the storm was when struck full in the face with an avalanche of snow. The wind high up in the mountains became terrific. I could not see a foot in front of my nose. The only way I could tell that I was going in the right direction was by the feel of lowering ground, denoting that I was going down the mountain-side. But at any moment I might fall into a pit hundreds of feet deep. This was close to the old Indian Pass region, and one of the roughest of the whole Adirondacks. For hours I stumbled on, and I was beginning to realize

'Dacks, as in many of the timbered sections, the lean-to is the standard overnight camp, when nothing better is at hand. I have known persons to live the whole winter through in a three-sided lean-to, known in the Far North as a Siwash camp, or Puckivan. Personally, I never spent a very comfortable night in a lean-to when it was more than ten below, but if enough wood is consumed in front, a person will exist. A camp of this type is usually constructed by placing a pole from a crotch in one tree to another adjacent, and then piling on poles with one end resting

that if the storm did not soon abate I was doomed to spend a night in the forest, menaced by a storm so severe that I could not hope to erect any kind of a camp. Suddenly there came a lull in the storm for about two seconds, and directly ahead of me I saw a giant spruce with boughs snow-laden and forced to the ground, as I have previously mentioned. So closely were these limbs bound together that it took some time to penetrate them. Once inside it was warm and free of snow. In fact, it seemed warmer than should be the case with no fire. Leaves were abundant and very deep on the ground, and I threw myself down, almost exhausted. Here is where I got the scare

of my life, for I lay down beside a great, heavily furred animal, evidently a bear. I do not know which was the more scared, myself or the bear, but the bear gained his powers of locomotion first and quickly made his way out into the storm, leaving me in possession of a bed already warmed!

When no other way of determining the points of the compass are available, it is well to remember that the foliage and bark on the north sides of the trees are apt to be heavier, and that the tips lean normally to the south. Above all: "Keep your head." A person can get out of any woods if he will only reason things out.

"Fuzzy"

(Continued from page 582)

berries that had hidden him so long, the Maple was surprised to see his size and width. Of course, etiquette forbade addressing anything to the Undergrowth—unless appealed to. But when the Maple's curiosity overcame his scruples of propriety one morning in August, Fuzzy was agreeably surprised at his kindly and courteous manner. A conversation was carried on pleasantly enough and in spite of the difference in their rank a warm friendship sprang up between them.

"I say, Sugar," Fuzzy said one morning after an hour or two of moody thought, "Why do you suppose they make shrubs like me? Here I am taller than almost everything in the Undergrowth and yet I haven't seeded and I can't seem to learn how to send up shoots. I don't even drop my leaves in winter. I'm not like any other tree, shrub or weed. Of course, it's all very well for me to ignore the Undergrowth—but sometimes I feel as though I'm not as much good as the worst of them."

"Cheer up, Fuzzy," replied his friend, "what are you kicking about? You haven't finished growing and you have a nice location here on the hillside. Plenty of sun and water and nothing to worry about."

"I haven't, eh? You don't realize what it feels like not to have a name. *You're* all right. The Sugar Maples are a famous family and nothing to be ashamed of. But I may be, for all I know, some new cross between a poison Ivy and a Choke-berry."

The Sugar Maple was serious in a moment. After thinking a short while he asked, "Can you see that clump of trees on the brow of the hill below? Well, that big Maple is my father. He can probably see you, if I point you out to him. I'll be talking to him as soon as the earth currents are cool enough, and I'll ask him what you are. If he doesn't know, it'll be pretty queer. He's fifty years old and can remember back when this whole valley was a Pine Forest. . . . Hullo! I wonder . . ."

"Wonder what?" asked the seedling.

"Oh, nothing. Just something, I was thinking out loud. I'll ask my father as soon as I can, that's the way to do it."

And then the Seedling was reminded of his feud with the Undergrowth and wearily plied his energies to force out root tendrils nearer and near to the dangerous Alder shoot.

By inspiration he sent his roots not straight towards the Alder's parent root, but below it. So that the powerful tap root was avoided altogether and the fight for position was tendril against tendril. Considering the size of the opponents, the struggle was herculean. Each root system was more than twice the size of its respective top development. And the Seedling was one against many, for every thing of the Undergrowth was crowding threateningly around to send a thousand roots down and deprive him of sustenance at its source.

As the struggle proceeded—ever so slowly reckoned in human time, but with a fierce activity translated into tree time—the jealous hatred of the Undergrowth broke into insult and jibe. He was nameless. A misfit. A grotesque freak. Fuzzy was extremely sensitive and so great an effect did this continued ridicule have on him that he fought less and less hopefully and often in despair.

A weary evening in October came when frost was in the air, and a cool wind blew fitfully from the North. As it touched the Seedling's top branches it cooled his heated fancy like a mother's great limbs shading a seedling from the hot noon sun. And as he raised his head to greet the bliss of it, the wind grew steadier and a fragrant odor came cleanly to him—the odor of the North Forests. And a great longing rose up in him as there grew ever clearer the singing of the Lords of the Forest—of the Pines on the Far Hills.

And so clear and free blew the breeze that all the Undergrowth heard it and was strangely silenced. For the Undergrowth admires the forest in its secret heart, but the Lords of the Forest inspire it with fear and awe. The reason is simple. Under a Pine little or nothing may thrive. The dense shade and the carpet of needles thick on the ground soon kill lesser things. Then the Pines arch themselves high over the soft carpet to make a vast cathedral—and here the Gods of the Forest come and make the edifice holy and inviolate forever.

The silence that came over the Undergrowth continued. Suddenly the Seedling noticed that his friend the Maple was waving his top branches wildly and swaying his stem in violent caricature of a dance. He stared in amazement.

"Oh my twigs and leaf buds!" shouted his friend. "Oh my sainted grandfather's tap-root! Who would have thought it!" And he commenced a second spasm of his dance.

"What have you been drinking?" the Seedling called to him. "Have you forgotten that you're a Tree of the Forest?"

The Maple became sober and grave, but repressed excitement was visible in his trembling leaves. "Old Top," said he, "prepare yourself for a shock. I've found out what you are and if I gave you a thousand guesses you'd never hit it right."

He paused a moment to calm himself and all the Undergrowth sprang to instant attention, as the word spread like fire that something interesting was going on. The Undergrowth was exultant. The Seedling was about to be exposed.

The Maple noticed this stirring about with a grim twinkle and held his news a moment so that his words would have their best effect. "Fuzzy," he announced solemnly, for in spite of his exuberance of spirit he realized the dignity of the occasion, "You know that all

these hills were once covered with Pines—and you know what has happened to the land in their absence." Here he glanced meaningfully around at the Undergrowth. "Well, Fuzzy, the Pines have returned and soon they will cover the hills once again. And it's you—you, old stump, are the future patriarch of the Forest. Isn't it too glorious to believe?"

Fuzzy became rigid as a wild thought raced through him. "What do you mean," he stammered. "Hurry, old friend—tell me!"

"Why, you're a Pine—a Pine! And the rightful Lord of the Forest."

The whole Undergrowth was frozen into silence, broken by a repressed rustle as the unbelievable word was passed in awed and frightened whispers.

Fuzzy in amazement struggled to accustom himself to his sudden glory. Great tears dropped to the ground unashamedly, for Fuzzy did not know he was weeping. And the whispered song of the Pines—the Pines on the North Hills—swelled in volume and grew into a mighty organ tone pealing louder and louder until with a blast the storm broke over the hillside. And the wind brought rain from the North to mingle with Fuzzy's tears.

And then he tossed his head to the storm and opened his soul to the rain and his great joy and pride poured into it as a river passes its final barrier and pours its vast volume into the sea that first gave it birth.

North of the Arctic Circle

(Continued from page 610)

balance and comes tumbling down, there is great merriment, and the tossers try to keep him from regaining his feet.

Shortly after the whaling season come the spring rains, the snows disappear from the tundra, and the gales break the arctic ice, carrying it far from sight. The prairie becomes clothed in its spring dress, the dwarfed willows bud and the fresh green leaves appear. The arctic wild flowers bloom in profusion, and the many species of

birds rear their families near the tundra pools. The cycle has been run—and instead of "eleven months winter, and one month dog-goned late in the fall," we find four seasons, fall, winter, spring and summer. And instead of six months daylight and activity, and six months darkness and inactivity, we find the eskimos happy, honest, healthy, hospitable people—living their lives much as we do ours, with their daily tasks to perform.

(Photographs by author except where otherwise indicated)

The Wood in "Old Ironsides"

(Continued from page 613)

inally. Where will the rebuilders obtain timbers of the species and dimensions used in 1794? That is a question which remains to be answered. Recent experience in rebuilding one of these old frigates, the *Constellation*, to only partially the extent to which it is intended to reconstruct the *Constitution* brought forth many difficulties. The photographs shown on pages 584-586 give an excellent idea of the sizes of some of the timber required and craftsmanship necessary in the project about to be undertaken. It was most difficult to obtain knees with thick enough throats, timbers suitable for spars, and workmen able to shape them.

As a last resort, it will probably be possible to obtain

the live oak from one of the old live oak reservations off the coast of Georgia but procurement of some of the other species in the sizes needed to match the old timbers may narrow down to a tree to tree search somewhat like the walnut survey conducted by the Boy Scouts during the late war. It is the hope of the writer that advance knowledge of the wood requirements of "Old Ironsides" will result in timely conferences among lumbermen and foresters to the end that timber for timber the old ship may be rebuilt without delay and without substitution. No greater monument can be set up by any man, or any group, than such a service in making possible the preservation of this national shrine.

HARDY
Everywhere



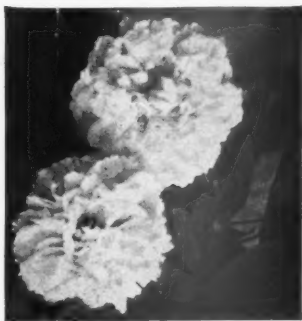
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this fall for a wealth of continued blooming season next spring and summer

Give life and royal beauty to landscaping and shrubbery by plentiful planting of glorious, improved varieties, selected to give four weeks (not one week as of yore) of magnificent blossoms—and luxuriant foliage during the whole green season of the year.

For a unique and startling effect on a larger country place—nothing will equal a hillside variegated mass of peony planting. Peonies must be planted this fall to obtain a 1926 blooming season.



SINGLE PEONIES—"Ecstasy Collection:" For the Garden Corner. 6 plants (yr. old) L'Etincelante, The Moor, Redwing, Hermes, Defiance, Areos. Trial order, these **SIX, \$9.00.**

Send for quotation on large quantities to brighten the landscape.

10 VARIETIES—Japanese Peonies, Oriental collection (yr. old) including rare Altar Candles, Departing Sun, Gypsy, Hettie Elliott, Lieutenant Hobson, Orange Prince, Rare Brocade, Snow Wheel, Tokio, Yeso, all of our best varieties, one each of 10, **\$35.00.**

MODERN DOUBLE PEONIES—"The Variety Dozen": Alsace Lorraine, Francois Rousseau, Mme. Lemonier, Festiva Maxima, James Kelway, Karl Rosenfield, Leviathan, Louisa Brand, Lord Kitchener, President Taft, Sir Fred. Leighton, Venus, Opal—**12 Plants, \$25.00.**

BEST IN THE WORLD PEONIES—**\$75 to \$225.00 each.** Write to us about the space you have. Let us suggest plantings for a square rod or for many acres. **Suggestions will be cheerfully given for small plantings or for spacious hillsides and woodland borders.**

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ONE RAT in the house or warehouse, a field mouse in the orchard, shrubbery or tulip bed, *will destroy more property value than the cost of exterminating the entire breed on your premises.*

You may apply the **SYSTEM** at the expense of a few dollars, or you may purchase a small-cost contract providing for the extermination by the **RATIN SYSTEM** experts themselves, with no trouble to you.

DR. WM. T. HORNADAY says: "This is the first time any rat-extermination scheme has worked out here with unqualified success * * * slaughtering the hordes of rats that we have been steadily fighting for 20 years."

J. E. TIMMONS, Curator, Detroit, says: "We have not seen a live rat since using it, also it has done no damage to any animals, birds or squirrels."

For information about our **REAL** service in eliminating all harmful rodents, **THIS** year, **NEXT** year and **EVERY** year, address

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"The Highway of the Giants"

By CHARLES W. GEIGER



THE California Redwood Highway, Sausalito, California, to Grants Pass, Oregon, is one of the remarkable scenic routes of the world. Its giant trees link up to a geological antiquity so deep and vast that ordinary time periods are as useful to measure it as a boy's kite-string is to reach the sun. Its majestic Sequoias make to the human spirit an appeal more potent than that of any other living things.

For a score of centuries or more, these monarchs of the forest have watched generations of humans come and go—have withstood the wrath of the elements, but still live on—superb in their ponderous majesty and grandeur.

Forest Research in Cuba

By GEORGE P. AHERN

Trustee, Tropical Plant Research Foundation

A YEAR of intensive forest research is to be inaugurated in eastern Cuba on October 1 next under the direction of the Tropical Plant Research Foundation, of Washington, D. C. Dr. H. N. Whitford, a forester of wide experience in the Philippines and Latin America, will have charge of the field work.

The project is financed by several sugar plant companies. Its objects are to secure information relative to

Cuban forests for use in formulating plans for their effective utilization; to provide a continuing supply of lumber for local building needs, railway ties, posts, poles, fuel, etc.; to study the possibilities of more effective utilization of forests about to be cleared for sugar cane fields; to consider the relation of the forests to soil conservation, rainfall and water supply, and the best means of providing a forest cover for non-agricultural lands, including the study of rapid-growing species, methods for forest nurseries, etc.; to investigate the possibilities of profitable development of forest by-products such as tannin, oils, fibres, gums, resins and dyes.

The interest aroused in the several large research organizations, through the seeking of future forest supply sources for the United States, is so keen that such future field and laboratory work as may be deemed necessary in tropical America seems fairly well assured.

All interested in tropical forest research, pioneering on forestry, etc., will do well to keep in touch with this very modest but significant project, a forerunner of research in the two billion forested acres in tropical America.

A Unique Tourist House

By T. J. STARKER



"THE WIGWAM"

ON the way to the greatest natural wonder, Crater Lake, is a type of tourist loafing place seldom met with. This house is located at Prospect, about midway between Medford and Crater Lake. In a setting of magnificent Douglas fir, western yellow pine and sugar pine, the owner has built an alluring mountain resort with private fish ponds, deer parks, fine lawns, beautiful flowers, fountains of pure, icy water and neat shelter for the campers.

The "Wigwam", as the proprietor called this tourist house, is octagonal in shape, about 36 feet in diameter and 24 feet to the peak of the roof. The frame is made of peeled fir posts 12 to 18 inches in diameter to carry the heavy loads of snow that fall in that region. The outer covering is of fine sugar pine shakes, giving the exterior a very attractive appearance.



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DO YOU own undeveloped lands or timber, or waste and wild tracts—white elephants on your hands? Do you know what your property is worth? What can best be done with it? How to go about it?

Our services include scientific forest management, land examinations, timber estimates and appraisals, soil and topographic surveys, fire damage and timber trespass claims, reforestation, second-growth problems, laying out of resort projects and estates.

If you will tell us which of these services interest you, we will gladly send full information.

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WE are offering for sale this fall 12 new varieties of peonies never offered to Peony lovers before:

Blanche King, Ella Christiansen, Hansina Brand, Hazel Kinney, Laverne Christman, Mrs. A. M. Brand, Mrs. P. A. Goodrich, Mrs. Harriet Gentry, Mrs. John M. Kleitsch, Mrs. Romaine B. Ware, Myrtle Gentry, and Victory Chateau Thierry.

At the American Peony Society's Show held in St. Paul, Minn., the largest Peony Show ever held in the world, we were awarded the Society's Gold Medal in Class 1, the largest class of the show.

We were also awarded a Gold Medal on our new Peony, Mrs. A. M. Brand, and a Silver Medal on our new Peony, Myrtle Gentry. The judges, in making the award, said that the above list constituted the greatest display of new peonies ever made.

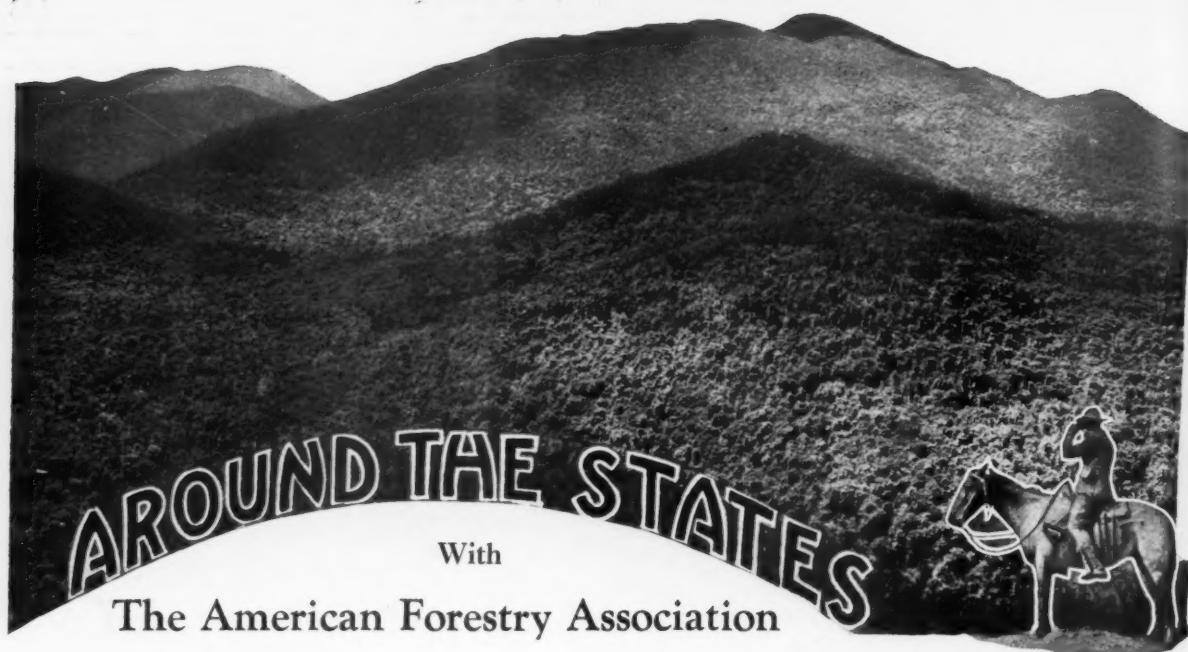
At the St. Paul Show, while these flowers were on display, we sold, in two hours' time, to people who saw the blooms, \$5,500.00 worth of roots—for delivery in the fall. We still have a few roots of each variety for sale. We will not offer them again until 1927.

You will want some of these the world's choicest and most beautiful peonies, for your fall planting; therefore, write today for Brand's FREE catalog of Peonies and Iris, giving varieties with full description and prices.

BRAND'S BIG PEONY MANUAL, which we consider the most complete and up-to-date work ever written on the Peony, gives the history of that flower, its culture and varieties. Price 35c, but that amount may be deducted from price of your order.

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MISSOURI FORESTRY DEPARTMENT STARTS BUSINESS

With Frederick Dunlap as State Forester, the Missouri State Forestry Department began operations September 1. The unique thing about the new department is the fact that it is financed with a \$10,000 fund, raised by the Missouri Forestry Association and made available, not as a loan to be later paid back from a state appropriation, but because the Missouri State Forestry Association does not propose to see the needed work allayed through veto of an appropriation to support it. Mr. Dunlap, in addition to his duties as State Forester, will have charge of farm forestry extension work in which the Missouri Forestry Association is cooperating with the Agricultural Extension Service.

The first activities will be a campaign to convince Missouri people that wild fire, which destroys more timber each year than is needed to supply all of Missouri's wood-using industries, must stop. Other features of the program which has been jointly adopted by the State Board of Agriculture and the Missouri State Forestry Association, emphasize the stimulating of private forestry practice, a definite campaign of education and the development of interest in road-side tree planting.

WHITE PINE BLISTER RUST INVADES PENNSYLVANIA

The white pine blister rust is beginning to appear in northeastern Pennsylvania where it has gradually crept down from the Hudson River valley and is more serious than the spot infection which occurred in 1916 and 1917, due to imported New England nursery stock. Prompt measures at that time and strict

quarantine kept the state free from this pest until 1921.

The state department of agriculture in cooperation with the Federal Government is now engaged on the survey of the infected area and private owners are taking measures to protect their white pines.

VIRGINIA STATE BODY FORMS FORESTRY COMMITTEE

Alignment of the business interests of Virginia back of the conservation of Virginia's forest resources was provided for recently by Dr. Joseph H. Smith, president of the Virginia State Chamber

president of the Southern Forestry Congress, was named chairman of the committee. Other members are: Milton E. Marcuse, president of the Bedford Pulp and Paper Company and chairman of the Natural Resources Protection Committee of the U. S. Chamber of Commerce; George H. Cless, Jr., Secretary of the Portsmouth Chamber of Commerce; T. M. Gathright, of Covington, and Elis Olsson, of West Point, vice-president and general manager of the Chesapeake Corporation. Mr. Cless will act as secretary.

Mr. Tyler is expected to call a meeting of his committee in the near future to discuss forestry problems. The committee will cooperate in every way possible with the Virginia State Forestry Department at Charlottesville, and probably will be asked to discuss a campaign of forest fire prevention.

GEORGIA FORESTRY COMMISSION ORGANIZES

Calling upon the people of Georgia to use special care with fire because of the prolonged drought and planning for the immediate appointment of a limited number of voluntary fire wardens, the new Georgia Forestry Commission held its first meeting in Atlanta, September 12.

Governor Clifford Walker, ex-officio chairman of the board, pledged his aid and that of the revenue department in prompt collection of the privilege taxes from which the department is supported.

A committee consisting of Bonnell H. Stone, C. B. Harman and Dr. S. W. McCallie was appointed to nominate a State Forester, submit a budget and secure quarters.

J. G. Peters, of the Forest Service, explained the cooperative features of the Clarke-McNary Act and indicated



WILL HE EVER WAKE UP?
—Washington Post.

of Commerce when he named a committee of five to study conservation methods and cooperate with the State Forestry department and other interested agencies.

William D. Tyler, of Dante, former



The clump of trees screens the southerly half of the bungalow's length

Providence Island

Lake Champlain For Sale

Ideal Location, Equipment, etc., for Sportsman's Lodge
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Fine boating and fishing—bass, pickerel, pike, etc.—and exceptional duck shooting in season.

Situated $\frac{1}{4}$ mile off shore from South Hero, Vt., (Rutland R. R.). 12 miles from Burlington, Vt.; 7 miles from Plattsburg, N. Y. Approximately a mile long and $\frac{1}{2}$ mile at widest point. Nearly 200 acres, 65 cleared and cultivated as self-supporting farm; remainder groves and virgin woods containing much valuable timber. Great natural beauty, rugged shore indented with many coves. Fine sandy bathing beach. Superb views of lake with Green Mountains to the east and Adirondacks on the west. Tentative lay-out for 9-hole golf course.

The improvements consist of a large bungalow with huge living and dining room, 4 master baths, and ample sleeping accommodations for 24-30 persons. Also service quarters with bath. Large room contains an enormous open fireplace. Spacious kitchen, pantry, cold storage plant, ice house. Telephone connection. House surrounded by 300 feet of verandah. Caretaker's cottage, horse and cattle barn, outbuildings. Sheep, chickens, turkeys. Boathouse with numerous canoes and rowboats; also 40-foot 90 H. P. (Morris Heights) speed boat. Concrete landing stage nearly 300 feet long. Also facilities for building, at very moderate cost, a pier accommodating the large lake steamers if desired.

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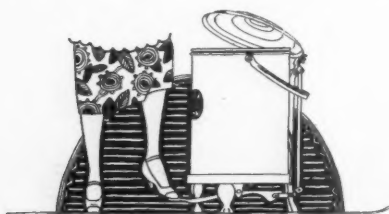
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New York shore to left

South Hero, Vt., on right



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Write for prices on large quantities. All prices are f. o. b. plant

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the Federal Government's readiness to cooperate with the new Georgia Department. Shirley W. Allen, Forester of The American Forestry Association, represented that organization at the meeting.

The meeting was followed by a luncheon-conference of the executive committee of the Georgia Forestry Association at which it was decided to make a definite drive to raise funds to employ a permanent secretary.

MATTHEWS JOINS TROPICAL FOUNDATION

Donald M. Matthews, for six years in the Philippines as Forester and for eleven years in British North Borneo, where he organized and administered the Forest Service in the latter country, has decided to join the Tropical Plant Research Foundation in its forest work in Cuba, according to Maj. George P. Ahern, of the Board of Trustees of the Foundation. Mr. Matthews will arrive in this country some time in February next. He will take charge of the field work in Cuba, relieving Dr. H. M. Whitford, who has been employed by the United States Rubber Association as an advisor. M. Koreloff, a Russian forester who has been doing some special work in New Hampshire and is now in Minnesota, will assist Dr. Whitford.

These men are forerunners of a large field force that will be employed later in research and the work of the Foundation in tropical America.

BOSTON SHADE TREE CONFERENCE

The second informal shade tree conference held in Boston on August 21 and 22, brought fifty tree workers, public officials and scientific men together to consider shade tree problems. Dr. Haven Metcalf, of the United States Bureau of Plant Industry, acted as Chairman, and W. O. Filley, of the Connecticut Agricultural Experiment Station, as Secretary. Visits were made to parks about Boston and to the Arnold Arboretum, and the program included conferences on white pine blister rust control and on patents in tree repair work. The next meeting is scheduled for Cleveland, Ohio.

AMERICAN PAPER AND PULP ASSOCIATION APPOINTS FORESTER

D. A. Crocker, a graduate of the Biltmore Forest School, and until recently Vice-President in Charge of Woodlands of the Eastern Manufacturing Company, of Bangor, Maine, has just been appointed Forester in the Woodlands Section of the American Paper and Pulp Association, New York City.

Mr. Crocker is leaving New York immediately for two months' field work in

the Northern Lake States, where a reconnaissance survey will be made of forests and forest lands, to be followed by a report on the practicability of insuring the pulp and paper mills of the Lake States a permanent supply of wood from the forest areas of those states. A considerable proportion of the pulpwood now used in the pulp and paper mills of the Lake States is coming from outside the states in which used, and it is hoped that the work which Mr. Crocker has before him will assist materially in hastening the application of sound methods of forest management over the great areas of land in the Northern Lake States which are better suited to the growing of forests than any other crop.

UNCLE SAM MORE GENEROUS THAN EUROPEAN COUNTRIES

Under the existing laws, 25 per cent of all National Forest receipts are returned to the states in which they accrue, for the road and school fund. An additional 10 per cent is made available for use by the Forest Service for road and trail work. This is an interesting contrast with some of the European countries having crown or national forests. In Sweden, for instance, it is said that only 3.3 of the Crown forest receipts are returned to the local communes.

SCHMITZ HEADS MINNESOTA FOREST SCHOOL

Dr. Henry Schmitz goes to the University of Minnesota as head of the division of forestry, at the opening of the school year, having resigned his position as Professor of Forest Products in the Forest School of the University of Idaho. Dr. Schmitz will be succeeded in the latter school by Dr. Ernest E. Hubert of the Forest Products Laboratory at Madison.

ANTELOPES INCREASE IN NEW MEXICO

Scarcity of watering places, according to Game Warden U. S. Soule, of Silver City, New Mexico, has broken up the main herds of antelopes of southwest New Mexico. Small groups are now ranging in widely separated regions. Fawns are observed in the different herds at a ratio of about one fawn to three old ones. This is said to be a decided increase over the first few years.

KENTUCKY HAS NEW STATE FORESTER

Fred B. Merrill, who has been Forester of one of the state districts in South Carolina, has been appointed State Forester for Kentucky, effective September 1, 1925.

UPPER MISSISSIPPI WILD-LIFE REFUGE INAUGURATED

With William T. Cox, former State Forester of Minnesota, as its superintendent, the Upper Mississippi Wild Life and Fish Refuge, authorized by Congress in June, 1924, is rapidly becoming a reality. Mr. Cox is busy locating land available for purchase with the \$400,000 appropriation, which is administered by the Secretary of Agriculture. Jurisdiction of the Department of Agriculture extends to wild birds, game, fur-bearing animals, trees, wild flowers and plants, while the Department of Commerce will have jurisdiction in respect to fishes, mussels and other aquatic animal life. The two departments are authorized to make suitable regulations, governing hunting and fishing on the areas acquired.

The refuge will extend for a distance of 300 miles from Wabasha, Minnesota, along the Mississippi to Rock Island, Illinois. Purchases may not exceed a price of five dollars an acre and are specifically limited to the bottom lands between the river and the bluffs which rise abruptly on either side from 200 to 400 feet. The region is considered one of the greatest spawning grounds in the United States for such species as bass, pike, sunfish and others. The pearl-button industry, dependent for a large part of its raw material on mussel shells, is important in the area under consideration and it is directly in the great American highway for migratory birds.

LAIST CHOSEN TO HEAD ANTIOCH LUMBER RESEARCH DEPARTMENT

Theodore F. Laist, Field Engineer for the Northern Hemlock and Hardwood Manufacturers' Association, has been selected to head the Department of Research in retail lumbering at Antioch College, Yellow Springs, Ohio. This department is sponsored by the Ohio Association of Retail Lumber Dealers and is designed to teach the fundamentals of the lumber business to students who wish to enter this field, and to work on research problems in retail lumber merchandising.

Mr. Laist is an experienced teacher, a licensed architect, graduate of Cornell University and splendidly fitted for the unique field which he enters.

TWENTY-SEVEN MILLION BOARD FEET OF LUMBER USED IN BROOM HANDLES

According to a statement in The Wood Turner, 27,000,000 board feet of lumber is consumed every year in the manufacture of broom handles. It seems that there are three kinds of broom handles; 32,500,000 are designated "parlor," 5,000,000 are designated "misses" and 12,500,000 carry the name "warehouse."



Before using
ALPHANO

To look its best a country place

After using
ALPHANO

must be framed with a foreground of verdant turf, soft to the foot and beautiful to the eye. Lacking such a greensward the picture will be imperfect and the appearance of a mansion architecturally beautiful, and of the costliest construction, will be cheapened and spoiled.

For it is the lawn, the trees and the shrubbery that give the beauty touch to the country house, whether it be a mansion that vies with the stately homes of old England, with lawns and fields and gardens, or a suburban homestead with just a few choice acres.

If the turf be uneven, with the earth showing through in spots, and not a true green; if the shrubbery and the trees lack color and foliage, the picture will be depressing. **WHEREAS** a fine lawn, with healthy trees and bright flowers and shrubbery, gives a charm to the most humble cottage.

Rationally used, in sufficient quantity to meet the soil conditions, **PREPARED ALPHANO HUMUS** will give you a deep, soft and **ENDURING** turf, and improve the trees and shrubbery.

It Is a Clean, "Nature Product"

If applied **BEFORE WINTER** sets in, it will insure a charming spring lawn and garden, and add greatly to the beauty and attractiveness of your Estate.

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That you may "try it at once" and get acquainted quickly, we will send you "once" a trial shipment of four 100-pound bags, by freight collect, from Alphano, New Jersey, on receipt of \$5 (check or money order), and also send you instructions how to use it.

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DO YOU want to know who manufactures a certain type of greenhouse, sprinkler system, or sewage disposal plant, who can furnish trees, shrubs or vines of a certain kind; who handles the best camping, fishing or hunting equipment; who can estimate a stand of timber or prepare plans for reforesting cut-over lands?

Our readers are invited to avail themselves of our Service Department, which is in a position to answer the above and other questions of a similar nature. The service is rendered without cost.

We are always glad to cooperate with our readers in securing for them the latest prices, catalogues and other specific information. Let us help you.

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Hicks Yew

Introduced by Hicks Nurseries. Similar to the Irish Yew. Perfectly hardy in eastern Massachusetts. Will produce the English effect in American gardens. 1 to 1½-foot specimens, \$5 each.

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Evergreen foliage, varying from blue-green to bluish-white and red, depending upon the angle of light. 1-foot specimens, \$3 each; 2-foot specimens, \$6 each.

Pachystima canbyi

(Mountain Lover.) Exceedingly rare. A beautiful ground cover with green and bronzy-red foliage; plants grow about 6 inches high.

Other Rare Plants

Many other rare and distinctive plants will be found at Hicks Nurseries. Full information will be given on request to readers of American Forests.

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PUT AMERICAN FORESTS AND FOREST LIFE IN THE SCHOOLS

One of our members, Mrs. Ida Reed-Smith, of Illinois, makes a valuable suggestion. She herself sends her magazine each month to her Alumni High School and she urges others to "do likewise." If AMERICAN FORESTS and FOREST LIFE could be sent to every High School in the country, it would be placed "where it will do the most good in influencing the minds and actions of the America of tomorrow."

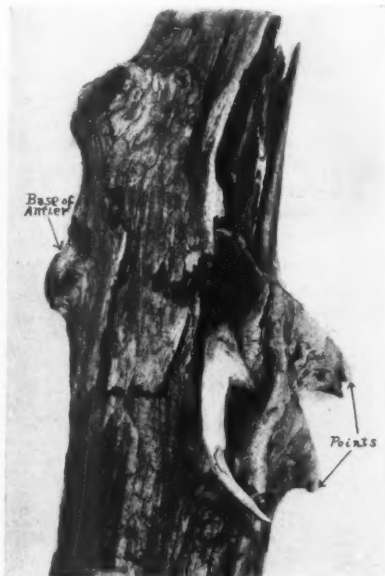
How about your High School?

THE HORN IN THE HEART OF THE OAK

By JOHN C. BURTNER.

A three-point deer antler, grown through the heart of an oak log, was found near Corvallis, Oregon, by a senior student in forestry at the Oregon Agricultural College. So unusual is the specimen that the curiosity of both naturalists and foresters has been aroused, while historians have speculated on the conditions obtaining at the time the horn was made "captive" by the tree.

Purely a chance discovery revealed the horn. Walking through the woods, Milton Edmunds decided to build a camp fire. Approaching an old fallen oak log, some ten inches in diameter, he started chopping off some dry pieces of fire wood with his ax, when the ax struck something even harder than the dead oak. On examination this proved to be one point of a deer antler.



THE IMBEDDED ANTLER.

Further examination revealed that two other points of the antler had been almost completely grown over by the tree, which had circled them with wood just as a dead knot or prong of a limb is healed over by successive years' growth. The main body of the horn extended through almost the exact center of the log, while on the opposite side a pronounced bulge invited further investigation. A half inch under the surface of the dead wood, the base of the horn, where it had separated from the head, was found perfectly preserved.

Had the tree been standing in its original position, the horn would have been between four and five feet off the ground, hanging points downward. The age of the log could not be told accurately, as there

was no way of determining how long it had been dead nor how much sap wood had been rotted off through the years. As some 50 rings could be counted, however, foresters estimated that the log must be at least 75 years old and possibly older.

The question that immediately arose when the strange piece was brought in was, "How did the horn get there?"

Clearly the antler got into the tree when the latter was a mere "grub oak" as it was held in the very heart of the log. It has been suggested that it was hung in a crotch of the young oak by a passing hunter, held firmly by the growth of the tree, and gradually grown over as the years passed. Another suggestion was that a deer in the shedding season rubbed it off on the then little tree, where it hung. Strangely enough, however, there is now no evidence of a crotch at or below the horn, while a glance at the picture will show that the center of gravity for the horn is not at the heart of the log, or what would then have been the base of the crotch.

Another peculiarity which has been commented upon by naturalists is the fact that the horn shows no evidence of the work of rodents. Few antlers are found in the forests now except during the shedding season, as field mice gnaw the horns rapidly and soon have them entirely consumed. Either mice were absent from the woods at that time or something prevented their reaching the antler and working its destruction.

This unusual specimen is being preserved in the forestry museum at the Oregon Agricultural College.

FIRE RECONNAISSANCE FROM AIR-PLANE EFFECTS BIG SAVING

Airplane observation of the Hopper Mountain fire on the Santa Barbara National Forest, according to information from the Forest Service, made possible the discovery of a change of course by the fire in time to switch men into a strategic position on the new front. This was after they were already under orders to go to another point in accordance with plans worked out from ground reconnaissance. It is claimed that the information on the movements of the fire obtained from the air effected a saving in suppression cost that amounted to at least \$10,000.

CALIFORNIA'S INDIVIDUAL TREE-WATERING OUTFIT

The California Highway Commission shops have turned out a one-man tree-watering tank truck, equipped with lights so that highway trees may be watered at night when the dry seasons make this necessary.

SOMETHING FOR WISCONSIN TO THINK ABOUT

A writer for AMERICAN FORESTS has returned from China. He went to study trees. He traveled hundreds of miles without finding any.

He describes bare mountains, piling to the sky. And cities. No wood anywhere for buildings, none for fire, none for furniture or anything else except to build a few carts to transport food.

Buildings of stone, with little dirt platforms for beds, built over fireplaces to be warm enough to sleep in. Whole families huddled together on them. The fire a flicker of grasses and roots—not enough wood for any other kind.

The cities poor, the people poor, standards of living of the lowest. No conveniences because there is no wood.

But the author finds evidences of past greatness—of a flourishing civilization, the oldest in the world. Old walls stand and remnants of houses that were comfortable because wood was used in them.

It is old China, once rich, comfortable with great forests all over the mountains; now miserable, since the people learned too late to conserve the forests.

Today the Yellow River—"China's Sor-row"—flows through that country. It rushes out of its banks in spring because there are no forests to hold it. It wipes out cities and villages and drowns many people. Then it dries up, because there are no trees to feed it soil moisture. The fields on the bare mountains and in the valleys dry up, too. Crops fail and people starve.

They wanted to build a railway into this country to bring supplies and wood from other nations. They gave it up, because they have no trees to make ties. To bring them in would cost too much.

We in Wisconsin should read much about China. A few centuries ago it wasn't very different from Wisconsin. Today, Wisconsin isn't very different from China 500 years ago. It has many prosperous people, wasting forests.

Will our sons and daughters, a few hundred years hence, live in stone houses, sleep on clay beds over fireplaces and glean little willow sprouts—the last remnants of the forests?

They won't if a conservation policy is adopted and carried out. The governor vetoed the effort made by the last legislature, but that will not kill it. It will, however, delay the matter another two years. It will mean considerable loss, for two years means much with the present rate of forest depletion. Fires can do great havoc, as the last spring has shown us. However, it is never too late to mend. Germany and France have dem-

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Ask for Bulletin 65

LUTHER BURBANK

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onstrated to us that we can reproduce our forests and do it profitably. China never learned the lesson. See what it is today. To avoid a similar condition here we must have a well studied conservation policy, for it is upon our forests that our manufacturing, our agriculture, our lakes and streams, in fact, our very existence depends. We must see to it that we elect men to office two years from now who will support such a policy.—By F. L. Berner (Land o'Lakes Bulletin).

TELEPHONE WIRES AND SHADE TREES HARMONIZE IN FRANCE

Col. Henry E. Shoemaker, a director of The American Forestry Association, who is in Europe studying forestry problems at present, quotes M. Geoffroy A. Demarais, assistant inspecteur-general of State Highways in France, as follows: "We have no roadside tree problem in France. In the first place, most of the telegraph and telephone poles are very small, and are run for the most part in the fields, back of the trees. In cases where there are large poles, they are usually run on a curbing along the middle of the road, with the trees on either side and beyond the roadway. In the few cases where there are no fields but steep banks back of the trees, the wires are run on still smaller poles, under the lowest branches of the trees. It would be unthinkable for France to mutilate or cut down its roadside trees to accommodate the erection of wires, yet telegraphic and telephonic construction is just as active in rural France as elsewhere. Of course the French Government conducts the telegraph and telephone, and the officials of these departments work in perfect harmony with the highway officers and the department of forests and waters. In my opinion trees and wires present no disharmonies, and only official carelessness could cause conditions such as I hear exist in other countries like the United States."

LIGHTNING STAGES UNUSUAL PERFORMANCE

Ranger Torgny, of the Plumas National Forest in California, reports a very interesting incident in connection with a lightning fire, which shows the circuitous route of a bolt passing through three trees on its way to the ground where it started a forest fire. The lightning struck the top of a green tree, circled it completely, jumped to a second tree, making a swing around it, then to a third, finally reaching the ground and setting some pine needles afire. Although it did not, like Artemus Ward's postage stamp, stick to a thing until it got there, it arrived nevertheless, overcoming all resistance.

THE HOME SITE

Give me no treeless plain for a home,
No sun-beat prairie land,
No inland town, where granite looms
In barren streets like battered tombs
Of an ancient warrior band.

For I love the woods when they thicken
in spring,

When they shower their gold and red;
The warm sweet winds through their
fern-grown ways,

The gaunt gray shapes when the north
wind sways

The whining boughs o'erhead.

And the sea I love, when morning breaks
With pink the horizon line,
When it holds the path of the sun's last
day;

When the waves are plumed with the
storm-flung spray,

And the air is a'tang with brine.

Give me a road that leads to the sea,
Winding through friendly trees,
There I will build my dream-house walls,
Echoing surf and the wild-bird calls,
Fraught with vague mysteries.

—Elizabeth A. Thomas.

BIRD POPULATION MAY BE INCREASED

The average number of birds over the eastern United States is a little more than one pair to the acre, but it seems fairly easy to increase this number in suburban, residential, and park areas to about 10 pairs to the acre. This has been accomplished at Golden Gate Park, San Francisco, for instance, with 404 pairs to 40 acres; at Olney, Illinois, 70 pairs to 8 acres; and at Chevy Chase, Maryland, 224 pairs to 23 acres. Even higher records have been made, as 135 pairs to 5 acres at Wild Acres, Maryland, near Washington, D. C., and the number may run up to a much higher figure on a single acre where a thriving colony of purple martins is domiciled.

A frequently cited familiar European example of the value of attracting birds is worth repeating, says the Biological Survey. On the estate of Baron von Berlepsch, in Germany, bird attraction methods of every kind were practiced and among other things more than 2,000 nests were supplied, of which 90 per cent were occupied. During an outbreak of the oak leaf-roller, other woods in the region were entirely defoliated, but those on the Berlepsch estate stood out as a green oasis. With this example before them, municipal and provincial governments in Germany started providing nest boxes for birds, and more than 9,000 were erected in the Grand Duchy of Hesse alone.



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STOCKMEN WILL REVIEW FOREST SERVICE GRAZING REPORT

Dan B. Casement, Manhattan, Kansas, who has developed a large stock farm near Manhattan and who is engaged in the range cattle business at White River, Colorado, has been appointed the special representative of the Secretary of Agriculture to make a review of the National Forest range appraisal report prepared by the Forest Service in 1924.

Mr. Casement is a permittee on the Uncompahgre National Forest and understands thoroughly the regulations and rules governing the grazing of livestock on the National Forests. He will begin his work on January 1, 1926, and is well equipped to advise the Secretary of Agriculture concerning the complicated problem of equitable grazing fees.

SMOKERS FOUND GUILTY

Smouldering cigarettes and burning pipe heels have both again been legally proved guilty of causing forest fires, reports the United States Forest Service.

Recently two fires were started on the Chelan National Forest in Washington. One was along the road between Brewster and Carlton. It was caused by throwing lighted cigarettes from a car. The guilty party was apprehended with sufficient evidence for conviction in Justice Geissler's court at Brewster. In addition to the fire and court costs imposed by state law, the party was assessed \$14.00, the cost of extinguishing the fire.

The other fire was caused by a sheepherder on Buttermilk Creek who went into a willow thicket to cut a pole. While running around in the thicket he knocked his pipe from his mouth, spilling the burning tobacco. The fireman on Lookout Mountain reported a fire between the forks of Buttermilk. When the Forest Service trail crew arrived, one and one-fourth hours later, they found an 8-acre fire. The shepherd admitted having been the cause of it. The judge did the rest.

LOGGERS RESORT TO 'EARLY SHIFT'

During the mid-summer fire crisis in British Columbia, many of the logging camps have adopted the "early shift" to avoid work in the woods during hours of low humidity and high fire risk. Men are called at 2.30 A. M., have breakfast, and are on the job at 3.30 A. M. Lunch is served at 7 and a cold meal at camp at 12 o'clock, noon. A hot supper is provided at the usual supper hour. This arrangement, according to the Western Forestry and Conservation Association, involves the expense of an extra meal but is a good fire prevention investment in view of the hazards of working during the low humidity period of the day.

The men in the camps are well satisfied and log production has not suffered.

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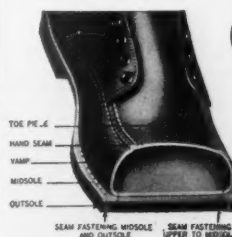
Note the unusual pattern at the toe. This is an exclusive Bass feature which does away with the tendency of the True Moccasin to rip at the hand seam.

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The Legend of the Cardinal

By GEORGIA S. COUCH

A splash of crimson on the dark-green pine,
A loud, sweet whistle in the morning clear,
A bright form swinging in the ivy vine,
The Cardinal, the king of birds, is here!

He is so beautiful, this royal bird,
With crested head and sooty velvet throat,
And I recall a story I once heard
That gave this reason for his brilliant coat.

An Indian princess, so the legend goes,
Whose father had refused that she should wed
A warrior from a tribe of ancient foes,
Into the forest with her lover fled.

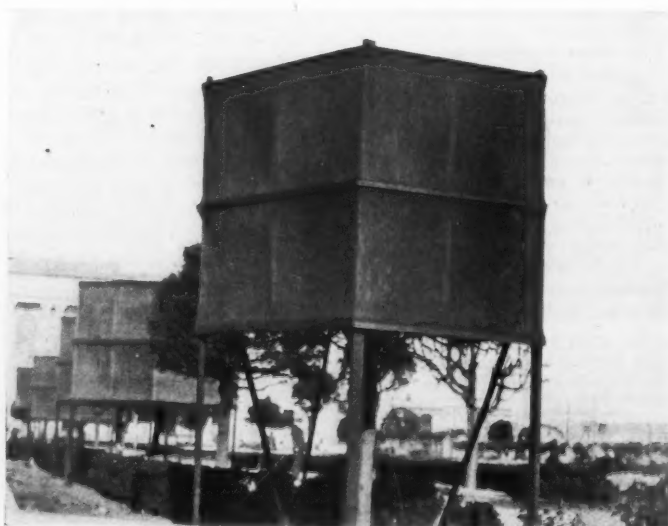
Her father's braves pursued them in their flight;
When woodland spirits on the scene looked down,
Beholding them in such a dreadful plight,
They changed the lovers into sparrows brown.

The hunters searched for them all through the day;
Defeat had only served to feed their ire;
So they decided, in their cruel way,
To drive the lovers from the woods with fire.

The warrior bird flew quickly through the flame,
His coat of brown to brightest crimson turned,
He bent his head to call the maiden's name,
And stooped so low his throat to black was burned.

The princess by the glaring light was dazed,
And lingered longer on her upward way,
So that her suit by fire was partly grazed,
While part of it was smoked to nun-like gray.

That is the story, as 'twas told to me,
About these birds of such majestic mien,
These visitors of mine of high degree,
Decendants of a warrior and a queen.



WIND BONNETS FOR TREES IN SAN FRANCISCO CIVIC CENTER

This interesting picture was sent in by Mr. Charles W. Geiger when west winds raised such havoc with the new shade trees planted in San Francisco's Civic Center that burlap protectors were set up to give the trees a chance to grow symmetrically. What next?

DEER HUNTING AUTHORIZED ON KAIBAB NATIONAL FOREST

Deer hunting on the Kaibab National Forest and Game Preserve in southern Utah will be permitted from October 1 to November 30, according to an agreement made between the State of Arizona and the Forest Service.

Forestry officials for several years have realized the necessity of reducing the number of deer now grazing on the Kaibab Forest and Game Preserve in order to protect the entire herd from starvation and disease. The range itself has been badly overgrazed and needs protection from the excessive number of deer now using it.

The hunting will be directed from designated camps on the east and west sides of the National Forest and Game Preserve where it will not interfere with the drifting of the deer on the top of the plateau or within several miles of the main highway.

No one person will be permitted to kill in excess of three animals and a charge of \$5.00 per animal will be made. The necessary authority can be secured at the camps which may be reached through Fredonia or Kanab from the north or across Lee's Ferry from the south. In order to avoid accidents, only a limited number of persons will be permitted on the areas each day. Hunters should make application for a specific date, to the Forest Service at Ogden or Kanab, Utah.

CIGARETTE TAX

A Wisconsin assemblyman proposes a cigarette tax, charging that more than 50 per cent of the forest fires are lighted by cigarette smokers and that the 2 cent cigarette tax contained in a bill recently introduced in the Wisconsin Assembly is justified to pay fire fighting costs.

Assemblyman S. J. Gwidt, author of the bill, writes as follows to the Madison Capital Times: "I propose to tax 2 cents a package on cigarettes, one cent of which I consider a painless luxury tax and the other cent a nuisance tax."

WHAT FOREST TREE SEED COSTS

The Pennsylvania Department of Forests and Waters brought together at Greenwood Furnace during 1924, four hundred and fifty-two bushels of white pine cones which yielded, from three thrashings, 467 pounds of seed, or a little more than one pound of clean seed per bushel. Collection and transportation of the cones cost \$1.11 per bushel and the final cost was \$1.08 a pound. This includes charge for everything except storage.

"Army Long Range" Binoculars ONLY \$7.95

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6 1/4" Open
4 1/2" Closed
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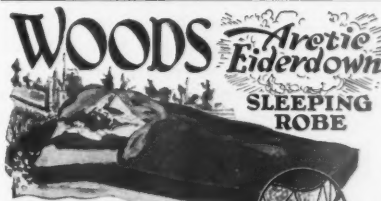
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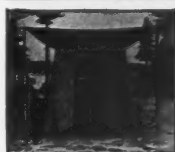
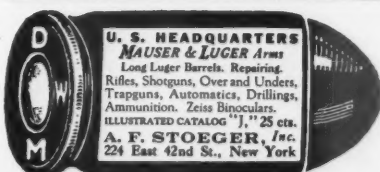
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Forest Fire News from the States

VERMONT

Vermont has in the field twenty forest fire watchmen and patrolmen, in anticipation of a dry fall fire season. Up to September 1, 55 fires had burned over only 837 acres, causing a damage of less than \$7,000. Public auto camp sites and a new lookout tower have done much to reduce the danger from fires.

NEW HAMPSHIRE

A trying period of dryness and high winds during March and April was followed by a summer season of little danger on account of green vegetation in New Hampshire. Early fall hazard was feared September 1.

MASSACHUSETTS

Four million people in an area of five million acres as a normal condition, with an extra half million added in the summer months, and 600,000 moving automobiles, puts the population and forest land in unusually close contact in Massachusetts. Two thousand locomotives operating over 2,500 miles of railroad trackage does not help the situation. There is danger this year that Massachusetts will exceed the previous ten-year average in number of fires unless early fall rains improve conditions. Up to August 31, 2,576 fires had burned over 35,800 acres.

PENNSYLVANIA

Pennsylvania reports a spring fire season up to May 31 of 2,060 fires which burned over 1,008 acres. Increases are due to brush burners, transient tourists and lightning. The Department of Forests and Waters is encouraged by the showing made by the fire control force in holding down acreage in the face of abnormal number of fires.

SOUTH DAKOTA

South Dakota has had plenty of moisture through the summer and few fires, but the drying of a luxuriant growth of grass and weeds has increased the fall forest fire hazard.

ARIZONA AND NEW MEXICO

Early in September all of the heavily forested country in Arizona and New Mexico had reported general rains and it was thought that the 1920 fire season was over. National forests in this region reported a total of 827 fires, only 175 of which were man-caused. Each of the past three years has seen sharp reductions in this particular.

CALIFORNIA

While California will not attain its objective, "a forest-fireless year," a splendid showing has been made in the prevention of fires through the educational efforts of the California Development Association and allied organizations. Public interest resulted in appropriations by the last legislature of \$20,000 for the enforcement of the so-called Nuisance Act, an old California law which requires an owner of private lands where debris has collected to such an extent that it becomes a fire hazard, to clean up upon notification from the State Forester. In case of failure the state makes the clean-up and costs become a lien against the property. Large amounts of slash have been disposed of under this Act.

OREGON AND WASHINGTON

Out of a total of 854 forest fires fought by the Forest Service in Oregon and Washington up to July 31 this year, 600 were lightning fires. Of the 254 man-caused fires, 104 were due to careless campers, 69 to smokers and 24 to lumbering. The lumber fires, however, stand first in point of damage and area burned over.

The Snow Creek fire on August 7th and 8th in the Olympic National Forest was the largest one in Washington. It burned 15,000 acres, including 700 acres of privately-owned timber outside the National Forest boundary and 600 acres of state-owned timber within the boundary were killed. Almost a thousand fires have occurred outside the National Forests and while acreage burned over is only about 25 per cent that of last year the expenditures for protection will be almost as great.

RHODE ISLAND

An efficient fire-fighting force in Rhode Island has kept down the number of fires to 60, previous to September 1. The 1925 season has not been more severe than usual.

CONNECTICUT

The first half of 1925 resulted in 730 fires in Connecticut, only 47 of which exceeded 100 acres in extent; while in 1922 there were 14 fires which burned an average of 2,000 acres each. No single fire this year exceeded 1,000 acres. Only one-fifth of the total number of fires was controlled by lookout stations, which points to the desirability of extending the detection system. Most of the bad fires started after 2.00 P. M.

MARYLAND

Maryland saw the worst spring fire season in its history this year. During the first six months of this year 373 fires were reported, many of which occurred during peaks of drought and strong winds. One encouraging feature, however, has been the small increase in area amounting to only 19 1/10 per cent in the face of 86 per cent increase in number of fires. A 60-foot steel lookout tower near Muirkirk, in Prince George County is being erected to control the section between Washington and Laurel. This stretch of country suffers from fires from the Baltimore and Ohio and the Pennsylvania Railroads and from the carelessness of Washington suburban residents.

NORTH CAROLINA

The Piedmont and mountain section of North Carolina has suffered badly from a dry winter during the past season, complicating the usually unimportant fire season. The Grandfather Mountain fire which burned fiercely for several days and was yet smouldering in September, was somewhat exaggerated in early newspaper reports, but considerable damage was done to the eastern slope of Grandfather Mountain. Other serious fires have occurred in the Great Smoky Mountains. Both of these areas have been talked of for National Parks. Summer fires in this region have greatly stimulated interest in fire protection.

KENTUCKY

A wet spring in Kentucky lasting well into the summer is responsible for the low number of bad fires this year. Signs of fall drought point to a repetition of last year's fall fire season, which was severe.

TENNESSEE

The most serious dry period for years, during which trees have actually died from lack of moisture, threatens severe fire hazard during the fall in Tennessee. The Department of Forestry is well prepared to meet the situation.

LOUISIANA

An abnormal drought in Louisiana during the late spring resulted in a great many fires in the central belt. Private fire fighting patrols of large companies organized during the present year have been effective. Up to July 1, 1925, there were 619 fires as against 1,380 during the same period in 1924. Acreage burned over was also reduced more than one-half.

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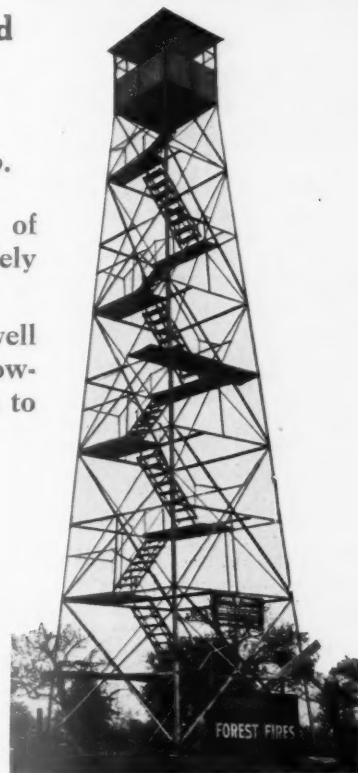
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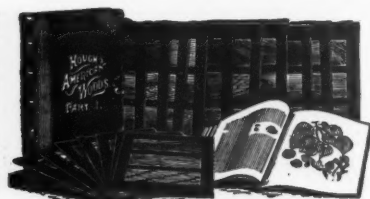
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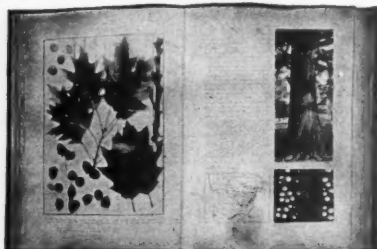
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OHIO

Ohio has in a sense a year long fire season with the peaks coming in spring and fall. Low humidity and high winds have made the past year especially severe. Within the organized fire district, embracing 1,150,000 acres, 212 fires were reported up to September 1, which burned almost 27,000 acres with an estimated damage of almost \$42,000. Railroads and brush burning caused the most. Improvements in detection and control systems are going forward as rapidly as funds will permit.

INDIANA

Failure of a bill which would have established a fire protection organization for Indiana in the last legislature, puts off until 1927, possibility of controlling fall fires in Indiana. There have been few fires throughout the summer but there is the necessity to combat the practice of certain hill county residents, who allow fires to get out in the fall.

MINNESOTA

Minnesota has experienced the driest season on record, the total August precipitation was only .14 of an inch. Small wood fires and peat fires have been general, but well controlled. No great damage has been done since the severe late spring fires.

KANSAS

Albert Dickens, State Forester of Kansas, writes refreshingly that there is no fire news in Kansas. "In the early days trees were almost too scarce to furnish gallows for horse thieves," he says, "and ever since then trees have been cultivated, protected and honored as public property, no matter in whom the title was vested. Any time there is a little sign of smoke in any timber plot, everybody goes to see what is the matter and to help put it out."

MICHIGAN

On September 1, had forest fires were reported near Hillman, Montmorency County, Michigan, and all mills in Cheboygan County were closed down to permit their employees to fight fires. Slashings in Manistee County were also giving trouble.

TEXAS

The fire protection force of the Texas Forestry Department has been increased from 32 to 46 men and the Department otherwise strengthened for a severe fire season.

VIRGINIA

As late as September 16, had fires were reported in the Dismal Swamp region, considerable timber having been destroyed near Ryland.

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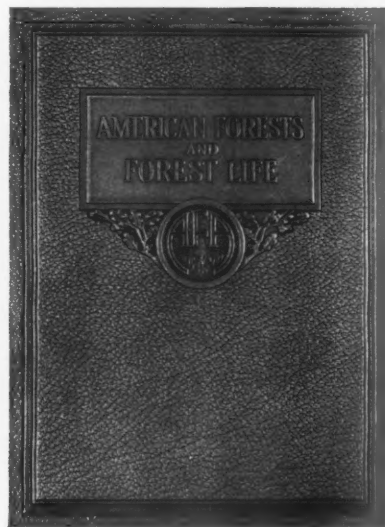
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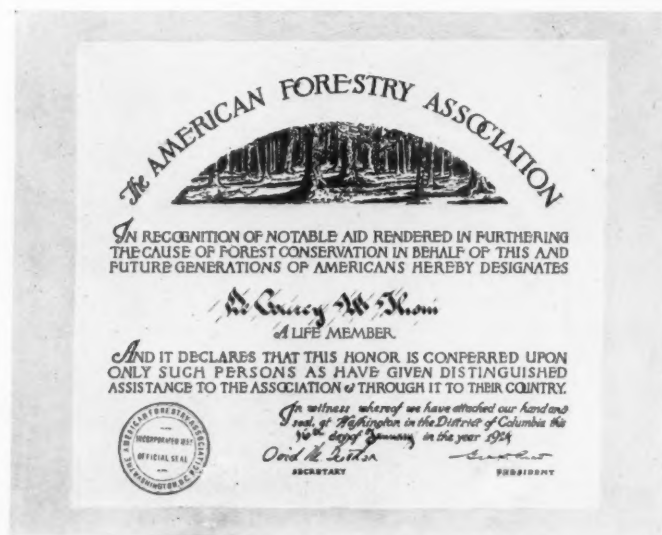
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